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Part 1. Introduction

Who Assassinated President Kennedy?

On November 22, 1963, in Dallas, Texas, President John F. Kennedy, while riding in an open limousine through Dealey Plaza and waving to the surrounding crowds, was shot to death. Lee Harvey Oswald, an ex-Marine, and former visitor to the Soviet Union, was arrested that afternoon in a movie theatre in another section of Dallas; that night he was charged with shooting President Kennedy from the sixth floor easternmost window of the Texas School Book Depository Building overlooking Dealey Plaza. This act Oswald denied steadily through two days of questioning (no record of questions and answers was ever preserved). Two days later while Oswald was being transferred from one jail to another, he was shot by Jack Ruby, a Dallas night-club owner, in the basement of the Dallas police station, while millions of Americans watched on television. The commission of investigation, appointed by President Lyndon B. Johnson, and headed by Chief Justice Earl Warren of the U. S. Supreme Court, published its report in September 1964, and concluded that Oswald was the sole assassin and that there was no conspiracy.

In view of the authority of the Warren Commission, that conclusion was accepted by many Americans for a long time. But the conclusion cannot be considered true by any person who carefully considers the crucial evidence — such as the physics of the shooting, the timing of a number of events, and other important and undeniable facts. In other words, Oswald was not the sole assassin, and there was a conspiracy.

This article will develop that thesis, prove it to be true on the basis of substantial, conclusive evidence, and in particular some analysis of the photographic evidence.

There was in fact a conspiracy. Oswald played a role in the conspiracy, although there is conclusive evidence that on November 22, 1963, he did no shooting at President Kennedy, and that, just as he claimed when he was in the Dallas jail, he was a "patsy." At least three gunmen (and probably four) — none of whom were in the sixth floor easternmost window of the Texas School Book Depository building where the Warren Commission placed Oswald — fired a total of six shots at President Kennedy.

One of these shots missed entirely; one hit Governor John B. Connally, Jr. of Texas, riding with Kennedy; and four hit President Kennedy, one in his throat, one in his back, and two in his head. (The bulk of the undeniable evidence for these statements about the shots consists of: (a) the physics of the motions of Kennedy and Connally shown in some 60 frames of the famous film by Abraham Zapruder; (b) the locations of the injuries in Kennedy and in Connally; and (c) more than 100 pictures, consisting of more than 30 still photographs and more than 70 frames of movies.)

More than 50 persons were involved in the conspiracy at the time of firing the shots. These persons included members of the Dallas police force (but not all of the Dallas police — and that accounts for some strange events), elements of the Central Intelligence Agency, some anti-Castro Cuban exiles, some adventurers from New Orleans, and some other groups. After the assassination, some very highly placed persons in the United States government became accessories to the crime. In other words, they participated in assiduous concealment of important facts, in shielding the perpetrators of the crime, and in spreading a thick layer of rewritten history (in the manner of George Orwell's famous novel "1984") over the whole crime.

Of course, asserting these statements makes them neither true nor believable. Without very strong evidence, it would be evil to make such statements. As to believability, prior to District Attorney Jim Garrison's trial of Clay Shaw in New Orleans in Feb. and March, 1969, public opinion polls in the United States showed that over 75 percent of the people in the United States believed that there was a conspiracy. The press, radio, and TV almost everywhere in the United States reported Garrison's investigation and the New Orleans trial in a very distorted way. Furthermore, Garrison did not prove to the satisfaction of the New Orleans jury that Clay Shaw was involved in the conspiracy, even though he proved that Shaw knew and met Oswald. The news media of the United States (except for two newspapers in New Orleans) reported the trial in such a way as to show that no conspiracy existed. The media largely succeeded in changing U.S. public opinion, if we judge from the falling off of the poll percentages.

But the United States' media have been proved wrong many times before, and they will be proved wrong again in this case. For example, the press of the United States almost entirely refused to believe for five years (1903 to 1908) that the Wright brothers had flown in a flying machine heavier than air. Only after the Wright brothers had won spectacular air races and demonstrated other successful flights in France, did the majority of the "hard-headed" American press believe that the Wright brothers had flown!

But the evidence cited or referred to in this article, and the existing photographic evidence and its analysis, a little of which is published here, establishes the fact of conspiracy. This evidence along with other evidence should and can initialize a major change in the beliefs of the people of the United States. As for beliefs of the people of Europe, it has long been and still is accepted there that President John F. Kennedy was assassinated by a conspiracy.

What is the Evidence?

The evidence for the statement — "the Warren Commission conclusions are false" — is now overwhelming.

There now exists not only a mountain of new evidence, but also considerable new analysis of the old evidence, the evidence which the Commission itself published in the 26 volumes of Evidence and Hearings accompanying the Warren Report. Much of the new evidence and the new analyses of the old evidence are available for any serious researcher's inspection; if any such person is interested, he should write me.

There are four prime sources of new evidence and analysis:

1. Researchers all over the United States, some affiliated with the National Committee to Investigate Assassinations (NCTIA), others acting independently but cooperating with the NCTIA, have obtained new evidence from witnesses, and even from conspirators — including admissions and confessions.

Note from the Publisher: In order to include the article by Richard E. Sprague in this issue of Computers and Automation, it was necessary to type the article in the typeface of our "Across the Editor's Desk" section, rather than the usual typeface for our articles. We regret any reduction in legibility that may have resulted.

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2. The new evidence includes new photographic evidence, some of which is reproduced or described in this article.
3. Researchers have produced scientific, solidly-based analyses of the old and new evidence and published these analyses in books and articles.
4. The office of District Attorney Jim Garrison in New Orleans has, under his direction, carried on (and continues to carry on) an extensive investigation of President Kennedy's assassination. Much of this evidence has been made available to the NCTIA.

This article concentrates on some of the photographic evidence and problems of computerized analysis. However, for the benefit of readers who would like to examine some of the other evidence, a few very important and interesting references will be mentioned next.

Four Important Reference Books

One valuable book is Six Seconds in Dallas, by Professor Josiah Thompson, a professor of philosophy at Haverford College, Haverford, Pa., published in 1968 by Bernard Geis and Associates, New York, 323 pages. Thompson made a thorough and competent analysis of the happenings during the six seconds when President Kennedy and Governor Connally of Texas were shot. With the cooperation of Life magazine during the first part of his investigation, he looked at the clear original of the Zapruder film. (After that, Life magazine locked the film up and denied any further access, until Garrison subpoenaed the film for the New Orleans trial of Clay Shaw.) Thompson showed that at least three gunmen shot at the President, and that one of the fatal shots came from the front and not the back.

Another impeccably scholarly book is Accessories after the Fact, by Sylvia Meagher, published in 1967 by Bobbs Merrill Co., Indianapolis, Ind., 477 pages. She presents a most thorough analysis of the gaps, conflicts, contradictions, and failures to investigate, that are clearly revealed by careful study of the Warren Commission Report and the 26 volumes of supporting documents.

A third important book is Inquest: the Warren Commission and the Establishment of Truth, by Edward Jay Epstein, published by the Viking Press, New York, N.Y., 1966, 224 pp. Epstein makes a pregnant remark at the beginning of his Chapter 9, "The major problem in the writing of the Report was the selection of the evidence. From the tens of thousands of pages of evidence, which facts were to be included and which facts excluded?" This book is an illuminating account of what actually did happen in the work of the staff of the Warren Commission, and why and how they could have reached the wrong conclusions.

A fourth significant book is Farewell America, by James Hepburn, published in Canada and in Belgium by Frontiers Publishing Co., Vaduz, Liechtenstein, 1968, 418 pp. (One cannot be sued in Liechtenstein.) This book is apparently based largely on information collected by certain former members of the French intelligence service, who penetrated the plot to assassinate President Kennedy. According to the book jacket, the author, James Hepburn, attended the London School of Economics and later graduated from the Institute of Political Studies in Paris. (However, "Hepburn" is a pseudonym.) The book gives a large amount of information about the plot to assassinate Kennedy, its background, and parallels in history. The book alleges that J. Edgar Hoover knew of the plot beforehand and did nothing to stop it. It also alleges that a Texas oil millionaire, some other oil men, some Texas and Californian rightists, leaders of the Dallas city government, many members of the Dallas Police Department, and many members of the CIA, the FBI, and the Secret Service, all were involved in the plot. I do not agree with nor believe some of these allegations.

Appendix 1 of this book lists many "classified" documents in the National Archives of the United States, such as no. 931, a secret CIA document entitled "Oswald's access to information about the U-2" (the spy plane). Appendix 2 lists more references, entitled "reports, memoranda, and documents" such as "Dossier Richard M. Helms", "General Dynamics Dossier F 111" — but how to get access to these references is nowhere mentioned. Pages 308 to 324 contain a remarkable account of twenty years' activity by the CIA. Much of the information in the book is clearly true; other information is probable or plausible; some information is clearly in the category "possible but hard to believe" and by no means proved.

For reasons that may be guessed, this book is very hard to obtain in the United States but it can be bought in other countries. Although it has Library of Congress catalog no. 68-57391, at the Library of Congress it is "not available". Commercial importation of the book has been blocked by the U.S. Customs and the U.S. Post Office. A movie with the same title has been made by the publishers of the book; the movie, "Farewell America", has been shown in several European cities, but no copies of the film are so far available in the United States.

A number of important reference books are included in the partial bibliography at the end of this article. Among the more important authors are Harold Weisberg, Paris Flammande, Mark Lane, Rosemary James, Joachim Joesten, and Raymond Marcus. A fuller bibliography is available from the NCTIA.

The New Orleans Trial of Clay Shaw

One of the largest additional installments of new public evidence came out of three weeks of court testimony given in New Orleans, Feb. and March, 1969, when District Attorney Jim Garrison charged Clay Shaw with having a part in the conspiracy to assassinate President Kennedy.

The trial was accurately and very fully reported in The Times Picayune, Feb. 7, 1969 to March 2, 1969, the leading daily paper in New Orleans, published since 1847. The record of the trial as published in The Times Picayune contains many indications that:

1. Clay Shaw did know and meet with Lee Harvey Oswald (dead), David Ferrie (dead), and Jack Ruby (dead), and exchange money with them. Twelve witnesses saw them together in twos and threes, at various times and places.
2. There were at least three gunmen in Dealey Plaza firing at President Kennedy on November 22, 1963, from at least two directions, and therefore there was a conspiracy.

What Garrison failed to prove to the satisfaction of the New Orleans jury was that Clay Shaw was involved in the conspiracy in Dallas.

The Miami Police Tape

Among the pieces of new public evidence is the "Miami Police Tape." In September 1963, President John F. Kennedy gave a speech in Miami, Florida. Prior to this time a Miami police informer who had infiltrated the National States Rights Party interviewed one of its chieftains, a Mr. Milteer, in a hotel room in Miami. Unknown to Milteer the room had been bugged by the Miami police and the interview was taped. The informer drew Milteer out on

the subject of assassinations. Milteer said that Jack Kennedy was going to be assassinated either in Miami or in some other city by individuals who were connected with right wing groups including the Minute Men and the National States Rights Party. He said it would be done with a high-power rifle from a high point in a city building and that a patsy would be picked up by the police afterwards. He said a man using the name Brown was the most likely one to do it. He added that Brown had been following Martin Luther King around the country for several months trying to assassinate him too.

The Miami police turned the information over to the FBI, who informed the Miami police that they had turned it over to the Secret Service.

Kennedy was well protected in Miami and exposed himself as little as possible, apparently partly as a result of the Secret Service receiving the information.

On the morning of November 22, 1963, Milteer telephoned the informer to say that Jack Kennedy was coming that day to Dallas, and would probably never be seen in Miami again. The informer interpreted this to mean that Kennedy would be shot in Dallas, and says that he reported this information to the Miami police. The Miami police in turn reported the information to the Miami office of the FBI.

After the assassination, the Miami police assumed that either the FBI or the Secret Service were following up on these leads. So the Miami police remained silent. When District Attorney Jim Garrison contacted them in late 1966, prior to public announcement of his investigation, the Miami police learned of Garrison's evidence about a conspiracy. They became very disturbed, and then decided in January 1967 to make the tape public. (Garrison's investigation did not become public until February 1967.) The Miami tape was played for a group of newsmen in the Miami police headquarters in January 1967. Stories about the tape appeared in several newspapers, but not in The New York Times nor in other leading newspapers, in spite of the importance of the story.

The FBI and the Secret Service had all the above information from the Miami police prior to the formation of the Warren Commission. Yet none of the above information appears in the Warren Commission Report, in the 26 accompanying volumes, or in the Warren Commission archives which have been made public.

Oswald's Message to the FBI

Among other evidence collected by Garrison (and confirmed by Mark Lane) is the fact that Oswald telephoned the Dallas, Texas, office of the FBI on November 20, 1963, and told them that President Kennedy was going to be assassinated on November 22. An FBI teletype message was sent that day to J. Edgar Hoover with that information. A repeat teletype message with that information was also sent on that day to the New Orleans office of the FBI, apparently because of Oswald's former presence in New Orleans.

A clerk in the New Orleans office of the FBI revealed the existence of the teletype message, and gave a deposition to that effect to Garrison. He also revealed the existence of that teletype message to Attorney Mark Lane after Garrison's investigation was made public. No statement about this message appears in the Warren Commission Report, in the twenty-six accompanying volumes, or in the Warren Commission Archives.

The Radio Communicator

One of the interesting events prior to the trial of Clay Shaw in 1969 was the finding of a man named Jim Hicks. He showed up voluntarily in Garrison's office. Garrison and one of the researchers, Jones Harris, suddenly realized that they had seen his picture before, as one of the persons in Dealey Plaza near the time of the fatal shooting (See Fig. 11). Hicks admitted that he was the radio communicator among the rifle teams since they were out of sight from each other, and of course each team would need to know what was going on. Jim Hicks had set up a communications center at the Adolphus Hotel prior to the assassination. The photograph Harris had seen is a picture of Jim Hicks in Dealey Plaza just after the shots, with his radio in his left rear trouser pocket and antenna hanging down outside. (See the foreground of Figure 11.)

Since the time of his admissions, Jim Hicks has been locked up in an Air Force Hospital for the insane located in Oklahoma.

Strange Events

In the Warren Commission's activities, there are many strange events, extraordinary patterns of behavior, and important unanswered questions to which the Warren Commission paid almost no attention. There are more than 50 instances of these strange events — where the Warren Commission did not look, or looked aside, as if they were trying not to see. Among these are the following:

1. Crucial records were burned or destroyed. For example, Commander J. J. Humes, chief autopsy surgeon, personally burned in his fireplace on Nov. 24, 1963 his preliminary draft of the autopsy report. The Warren Commission accepted this action as natural.
2. Crucial physical evidence was destroyed, as in (a) washing of Governor Connally's bullet-penetrated clothing, before it was examined by the Commission's staff, and (b) the prompt rebuilding of the presidential limousine, so that it could no longer be examined for bullet marks; etc. The Warren Commission accepted these actions without questioning.
3. The Warren Commission did not examine the autopsy X-rays and photographs of President Kennedy. In fact, the photographs were not even developed until two years after President Kennedy's death. The Kennedy family and Burke Marshall, their lawyer, assisted in locking them up.
4. The Warren Commission accepted the sudden appearance of a pristine bullet (Commission Exhibit 399) fitting Oswald's gun, on the wrong stretcher in Parkland Hospital, and the Commission assumed that it "fell" out of Governor Connally.
5. The Warren Commission (in an admitted error) published Zapruder frames 314 and 315 in reversed order, so that the motion of JFK's head after the fatal shot was reversed.
6. The Warren Commission ignored the visible and violent backward motion of President Kennedy's head shown in the Zapruder film at the instant of the fatal shot — a motion that conclusively shows that the President was fatally shot from the front.
7. The Warren Commission failed to investigate many possible motives for shooting President Kennedy, and who would profit thereby. Etc.

Perhaps the strangest of all the events are some events that took place after the Warren Commission made their report:

1. President Lyndon B. Johnson issued an executive order locking up in the Archives of

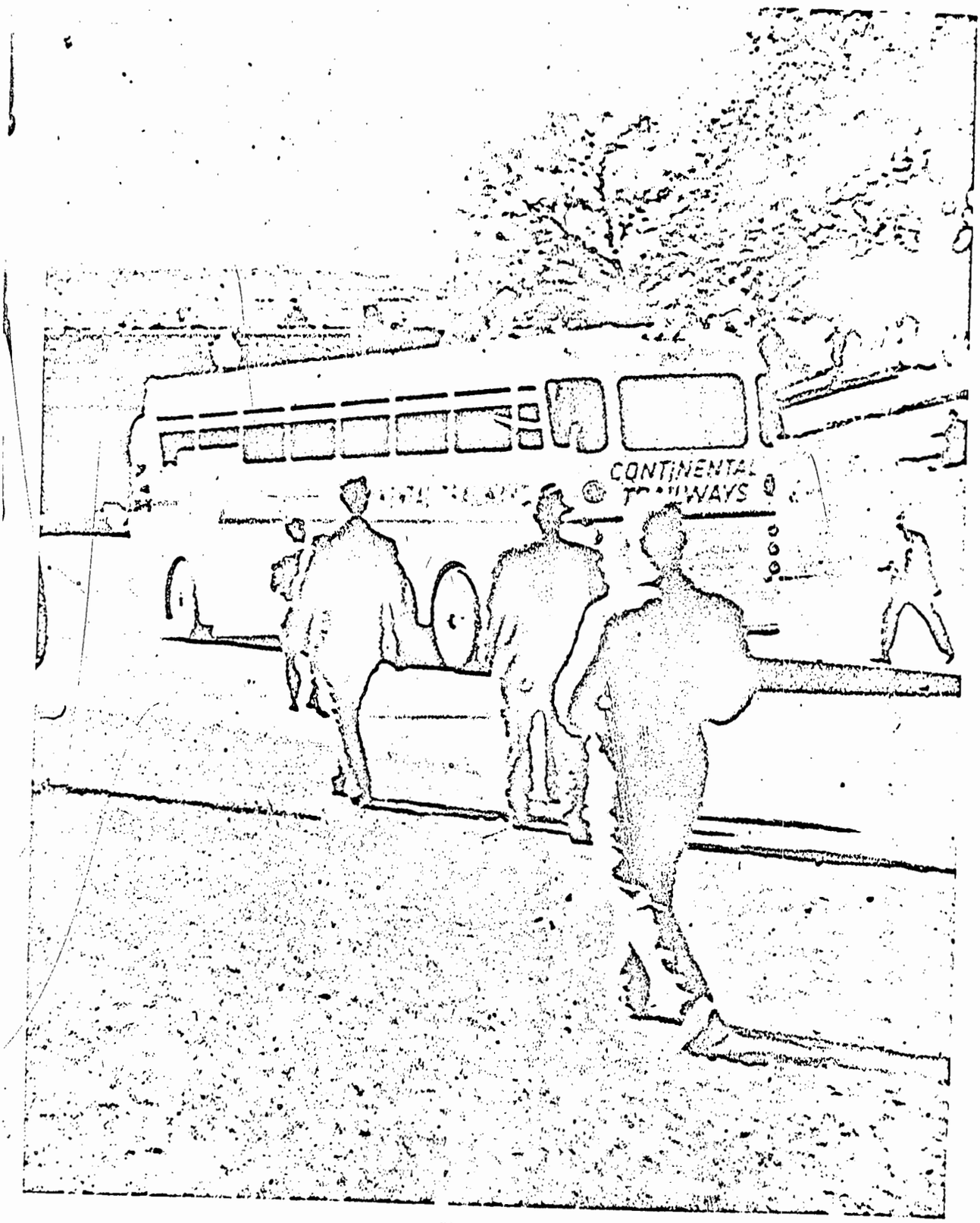


Figure 11

View of Dealey Plaza shortly after the assassination, showing Jim Hicks, the radio communicator among the firing teams, in the foreground, with radio in pocket, and "S"-shaped antenna hanging down. (Table 3, No. 87)

the United States for 75 years as "confidential, secret, and top secret," over 100 important relevant reports and memoranda. The list of the titles of these extraordinary documents was obtained and published in the Saturday Evening Post on April 6, 1968.

2. Chief Justice Earl Warren has steadily refused to consider any new evidence. As recently as 1969 he told newsmen, "I know of no new evidence, and have seen no new evidence." It is a fact that such new evidence exists in large quantities. This strange attitude may be coupled with Warren's steady silence in response to letters.

No scientist, no honest man, ever refuses to look at new evidence. The kind of action which locks away old evidence, and refuses to look at new evidence, is not the kind of action of honest scientists and honest men.

Basically, the Warren Commission picked up the Dallas police hypothesis, that Lee Harvey Oswald was the sole assassin and there was no conspiracy. Once they chose this hypothesis (and they chose it very early), they assiduously tried to confirm it, partly by selecting evidence, partly by suppressing information which they knew, and partly by altering evidence to the opposite — in other words, falsifying evidence. Their candidate for assassination vehemently denied (for two days before being killed by Jack Ruby) participating in or knowing about the assassination of President Kennedy. He also positively stated that he had been made a patsy, a fall guy. He also said that the photograph of him holding a rifle was a fake, saying, "That's my head but not my body." (That photograph is demonstrably a fake.)

Over 50,000 items of evidence exist which support and mutually confirm a contrasting hypothesis. This hypothesis is that there was a conspiracy, and that at least four persons shot at President Kennedy, and that more than 50 persons were involved in the conspiracy. In fact, about 6 persons who participated in the conspiracy have admitted their participation and described what happened in their own involvement. All of these items of evidence collected confirm the information in all of the photographs, and are very largely consistent. I do not allege that the CIA, the Secret Service, Lyndon B. Johnson, and certain other prominent individuals participated in the conspiracy before the assassination occurred. I do assert that these individuals and agencies, after the assassination occurred, participated in covering up and concealing the conspiracy and thereby became accessories after the fact. The evidence referred to is available under appropriate circumstances to an untainted Congressional investigation.

Part 2. The Photographic Evidence

Over 510 Photographs

The assassination of President John F. Kennedy was the most photographed murder in history. Approximately 75 photographers took a total of approximately 510 photographs, either before or during or within an hour after the events in Dealey Plaza, and either there or nearby or related to those events. The word "photograph" in this context includes both still photos and movie sequences. The number of frames in a movie sequence ranges from about 10 to about 500; and in the count of 510 photographs given above, the 10 to 500 frames of a single movie sequence are counted just as one photograph. The total number of frames is over 25,000.

The Warren Commission examined 26 photographs, about 5 percent of the 510. The FBI examined about 50 photographs, or about 10 percent. The most famous of all the photographs is the Zapruder film, which had over 400 frames.

Many of the photographs were taken by professional photographers. About 30 of the photographers were professionals who worked for newspapers, television networks, and photographic agencies.

The Warren Commission did not interview a single one of the professional photographers, nor did the Warren Commission see any of their photographs.

Fifteen of these professionals were actually in the Kennedy motorcade, no further than 6 car lengths behind the Kennedy car. Five of these photographers were television network cameramen. The Warren Commission looked at none of their photographs.

Two of the photographers were from the White House. One of these men (Thomas Atkins) was the regular photographer for the White House. He made a special film for Lyndon B. Johnson. Atkins used his own film plus some footage obtained from the television photographers. Johnson looked at the film and then put it away. This film is now stored with the Kennedy Memorial Library materials in a warehouse in Washington, D.C.; it is stated to be "unavailable" to researchers. The Commission did not see this film, nor did they interview Atkins.

Because the professionals used movie cameras of professional quality, their films are exceedingly revealing and valuable as primary evidence. The Warren Commission looked at none of these films.

During the past several years, I have collected copies of over 200 of these photographs, and I have looked at and taken notes on another 200 of these photographs, without obtaining copies of them. Some of the remaining 100 have either not been found or have been locked up or destroyed by the owners, who are fearful of the information they show. Or they have been locked up by the FBI, who have either placed them in files inaccessible to the public or possibly have destroyed them. (See Table 2.)

Chart 2 of this article shows the times of about 50 of the photographs taken in Dealey Plaza during Kennedy's passage through it.

Table 3 of this article lists over 510 photographs so far identified and known to exist or to have existed — with possibly a few borderline cases.

Most of the "official" photographs of the Warren Commission, or of the FBI, or of the Dallas Police, which are in the Warren Commission Report or in the 26 volumes of the Warren Commission's Evidence and Hearings, are not included in the list of Table 3, because such photographs were taken more than one hour after the shots were fired.

The 6th Floor Easternmost Window

According to the Warren report, Oswald was supposed to have fired a rifle from the 6th floor easternmost window of the Texas School Book Depository Building. (See Chart 1) Among the photographs there are several that show this window. Accompanying this article are copies of two photographs, one showing this window exactly 5.7 seconds before the first shot and one showing this window exactly 3.5 seconds after the last shot. (See Figs. 6 and 7) The first photograph (Table 3, No. 8) was taken by photographer Hughes, and shows the window with only a box appearing in it. The second (Table 3, No. 121) was taken by photographer Dillard and shows the window with only the box in it. There is a photograph taken by Norman Similas taken during the shooting which is now in the possession of the FBI (see Tables 2 and 3, No. 494). A possible reason for the FBI not to reveal or display this photograph is that it was taken between the first and the last

shots, and shows the window empty except for the box. Oswald and his rifle are not in this window — which would be complete proof that he was not there. Norman Similas, and also an editor of Liberty magazine in Canada, saw this photo, however, and both state that the window was empty.

Even without the availability of the Similas photo, the other two pictures destroy the Warren Commission's findings and the testimony of their key witnesses. The witnesses, notably Howard Brennan, said that the assassin was leaning out of the window and poking the rifle well out of the window both before and after the shots were fired.

The Warren Commission offers other evidence. The evidence consists of: three bullet casings "found" on the floor near that window; the three boxes arranged in the window to look like a gun rest; and the bullet (Commission Exhibit 399) which supposedly passed through both Kennedy and Connally. All this evidence can be demonstrated to be faked.

Photographs coupled with testimony prove that the Dallas authorities altered the "sixth floor TSBD" evidence. The alterations were as follows:

The original setting up of the bullet casings was too obviously faked. Sheriff Roger Craig arrived on the scene first and saw the three casings, side by side, neatly pointing in the same direction, just inches apart. By the time the "official" police photographer, Mr. Studebaker (who in reality was an amateur photographer with only two months experience), took pictures of them, the casings had been scattered around the floor by some member of the police force.

Similarly, the original position of the boxes making up the so-called "gun rest", was so obviously inadequate, that the police moved them to look a lot more like a gun rest. Jack Beers, Dallas Morning News photographer, took photos of the boxes at 4 pm while they were still in their original position. This fact is confirmed by several photos taken at the time of the shots from outside the building showing the corner of the topmost box stacked three high.

By the time Studebaker took photos of the boxes, used as Exhibits by the Warren Commission, it was after dark, and the boxes had been rearranged so that they were only two deep, with the third one moved onto the window sill. Checking the position of the corner of this box as it would appear from the outside of the building, shows that it is in a quite different east-west lateral location than the corner actually showed itself to be in the photos taken at 12:30 pm to 1 pm. (Dillard, Hughes, Beers, Weaver, Willis, Murray).

The net result of all this evidence collectively is the following proved conclusion: No one fired any shots on November 22, 1963 between noon and one pm from the sixth floor easternmost window of the TSBD.

The Zapruder Movie

Of all the photographs taken in Dealey Plaza on that fateful day, the color movie sequence of some 480 frames taken by Abraham Zapruder is the most important. It shows from the right hand side of the motorcade the entire sequence of events, from President Kennedy rounding the curve from Houston St. into Elm St., through all the shooting, until the big presidential limousine left with the dead president going under the triple overpass off to Parkland Hospital. This film almost by itself, with careful, scientific analysis, establishes the times of five of the shots.

The Warren Commission received the original of the Zapruder film to look at, on loan from Life magazine, which bought it from Zapruder. From that time on, the film was never publicly shown, but remained in the locked files of Life. But a direct copy of the original was subpoenaed and shown NINE times by Assistant District Attorney Alvin Oser in New Orleans in February 1969, at the trial of Clay Shaw. The judge, the jury, the newspaper reporters, and the spectators in the court room all became convinced that Oser and Garrison had demonstrated a conspiracy to kill President Kennedy.

When one sees and studies in detail the Zapruder film in its clear version and examines the other photographs showing the effects of the shots, one becomes convinced of two statements:

1. There were six shots, of which five hit persons in the Kennedy car; of these five the first went through the throat of President Kennedy; the second struck Kennedy in the back; the third struck Governor Connally in the right shoulder; the fourth and fifth struck President Kennedy nearly simultaneously in the head and blew out his brains. The remaining shot missed and struck a curbstone on Main St.
2. The last of the five shots (coming from the grassy knoll area), and one of the two fatal shots, struck Kennedy from the front and to the right, hurling his head to the left and backwards with great force, in accordance with the laws of physics. (For a scientific analysis, see Six Seconds in Dallas.)

Either one of these statements renders impossible the Warren Commission Report's conclusion, that only three shots were fired, the second one missing entirely and striking the curb of Main St.

Obviously, if there was a conspiracy, it becomes vitally necessary to prevent the American people from seeing the Zapruder film, clear and complete, and especially in motion. For over six years, except in New Orleans, this has been achieved. However, currently, bootleg copies of the Zapruder film are on sale here and there in the United States at prices ranging from $10 to $50, available for private and illegal showings, since Life magazine owns the original and has never given permission for copies of the film to be sold. Many of these bootleg copies, because of lack of clarity, do not demonstrate the first statement; but they do demonstrate convincingly the second statement, the backward thrust of President Kennedy's head at the time of the fatal shot.

Life magazine would be able to earn millions of dollars from showing the Zapruder film. In three days of showing the Zapruder film, uncut, clear, and not tampered with, on national television, every person in the United States who watched television could see for himself that more than three shots were fired (which makes the Warren Commission conclusions nonsense) and could see that the fatal shot thrust Kennedy's head backwards with great force (proving that he was hit from the front, and not the back, which also makes the Warren Commission conclusions nonsense). Although the Warren Commission report was silent on this last point, some defenders have tried to explain away the backward motion by conjecturing a speedup in the car's motion causing a "snap backward". The Zapruder film by itself shows this is not true. One can clearly see that the car does not speed up at the time, and that Mrs. Kennedy's head does not snap at all.

Other explanations have been offered, such as a whiplash motion, caused by Kennedy's neck brace, or a reverse explosion as the bullet from the rear exited Kennedy's head in front. Josiah Thompson's analysis in Six Seconds in Dallas, proves beyond a

shadow of a doubt, that only the force of a high velocity bullet striking Kennedy's head from the front could produce the head acceleration backward shown in Zapruder frames 313 through 315, and measurable therefrom.

More than a dozen other photos confirm that there were more than three shots.

Other Activities at the Time of the Shots

The photographs taken at the time of the shots (see Chart 2) show many other significant and important activities. Coupled with the testimony of photographers and other witnesses, the photos prove the Warren Commission wrong on several other points. To describe all of these points in detail requires more space than is here available. But the following list summarizes these activities and conclusions (see also Chart 1 for timing and direction of shots).

a. The first shot, fired by man #1 from behind the fence on the grassy knoll, hit Kennedy in the throat at Z189 (Z numbers in the text and on the Map refer to frame #s of the Zapruder Film. The frames were 1/18 second apart. The Z numbers on the map show the location of Kennedy in each Zapruder frame).

b. The second shot, fired by man #6 from the second floor window of the Dal Tex Building, struck Kennedy in the back at Z226.

c. The third shot, fired by man #6 from the Texas School Book Depository (TSBD) hit Connally in the back at Z230.

d. The fourth shot fired by man #6 from the Dal Tex Building struck the curb on the south side of Main St. at about Z285.

e. The fifth shot fired by man #6 from the TSBD hit Kennedy in the head at Z312+.

f. The sixth shot fired by man #5 from the grassy knoll hit Kennedy in the head at Z313.

g. Man #2 "created" a puff of smoke as an apparent diversion (as it turned out, the diversion was not needed) and then ran back beyond the position of man #1 and jumped over the fence.

h. The timing of the first shot established by three photos — Zapruder, Willis (Table 3, No. 85), and Betzner (Table 3, No. 101) — to be Z189, was such that the view of Kennedy from the sixth floor easternmost window of the TSBD, was completely obscured by a large oak tree. (B11 on Chart 1)

i. A man who looked very like Oswald ran down the grassy knoll ten minutes after the shots were fired and drove away down Elm St. with a Latin-appearing man in a light-colored station wagon with a luggage rack. To someone not familiar with all of the millions of details of the Kennedy assassination, this seems unrelated. However, other evidence indicates the man may have been an anti-Castro adventurer impersonating Oswald, and that the Latin may have been another of the anti-Castro Cubans.

Men Who Ran Away

Many photographs were taken within an hour after the shots, which show that certain men on the grassy knoll ran away after the firing, and these photographs show how they ran away.

For example, several photographs (Table 3, Nos. 3, 19, and 52) show a certain man, who has been labeled for the present as Man #5. He is apparently the man who fired the fatal shot, shot No. 6. His position has been shown on the map in area D6. The photos show that he escaped by means of a white car, which had been previously parked just a few feet from his position.

This subject has been investigated at length by the researchers, but the investigation has not been finished. It may be that the investigation cannot be adequately concluded until computerized analysis of the information in the photographs (see Part 3) has progressed much further.

The photos also show where and how men #2,3 & 4 ran away after the shots.

The "Tramps" and the "Phoney Policeman"

Approximately a half hour after the shots were fired, Sergeant D. V. Harkness of the Dallas Police was instructed by Inspector Sawyer of the Dallas Police (in command of Dealey Plaza police activities after the assassination) to go back to the railroad tracks (see Map and Fig. 1) and stop a freight train which was being moved out and search it. (The approximate time is established by the angles of the shadows in the photographs, by the testimony of Sergeant Harkness to the Warren Commission, Vol. 6, p. 312, and by the timing of Wm. Allen's sequence of photos.) The area where the freight cars were located is to the north and west of the TSBD, and north of the grassy knoll area.

Sergeant Harkness says he arrested some "tramps" or "hoboes" whom he found in one of the box cars in the railroad area. He says he took them to the station and does not say what station he meant. However, Sheriff Elkins said that a policeman brought three "tramps" into the Sheriff's office. (See map and Fig. 1.)

The route that Harkness would naturally take if he went to the Sheriff's office with the three "tramps" is exactly the route portrayed in the series of four photographs (Figs. 2,3,4, and 5), shown in this article. In Figs. 2, 4 and 5, two policemen can be seen escorting three "tramps" eastward from the direction of the railroad yards along the Elm Street extension in front of the TSBD. They turn south in front of the TSBD (Fig. 4) and proceed down Houston St. to the Sheriff's office. The vehicle entrance to the office is located at the center of the block on the east side of Houston St. between Elm St. and Main St. The entrance is directly in front of the five men as they proceed toward it in Fig. 5.

Why is this significant? First, there is no record at all of the arrest of these men — there is no record of their official booking nor of their release, even though Sheriff Elkins testified that he turned them over to Captain Will Fritz of the Dallas Police in the police station. Furthermore, there is no record in the Dallas police force of the "phoney" policeman at the right in Fig. 2. He is wearing non-regulation shoes or possibly rubbers; and in his right ear is either a radio communications device or a hearing aid.

Sergeant Harkness and Sheriff Elkins both indicate there was no other policeman with Harkness when he arrested the "tramps" and when he turned them over to Elkins.

Other information indicates that one or more of these "tramps" were members of right wing groups and were actually included among the gunmen who shot or shot at President Kennedy. If any reader of this article notices any person resembling any one of the "tramps" or the "phoney" policeman, it would be useful for him to send information to me.

(Text continued on page 50)

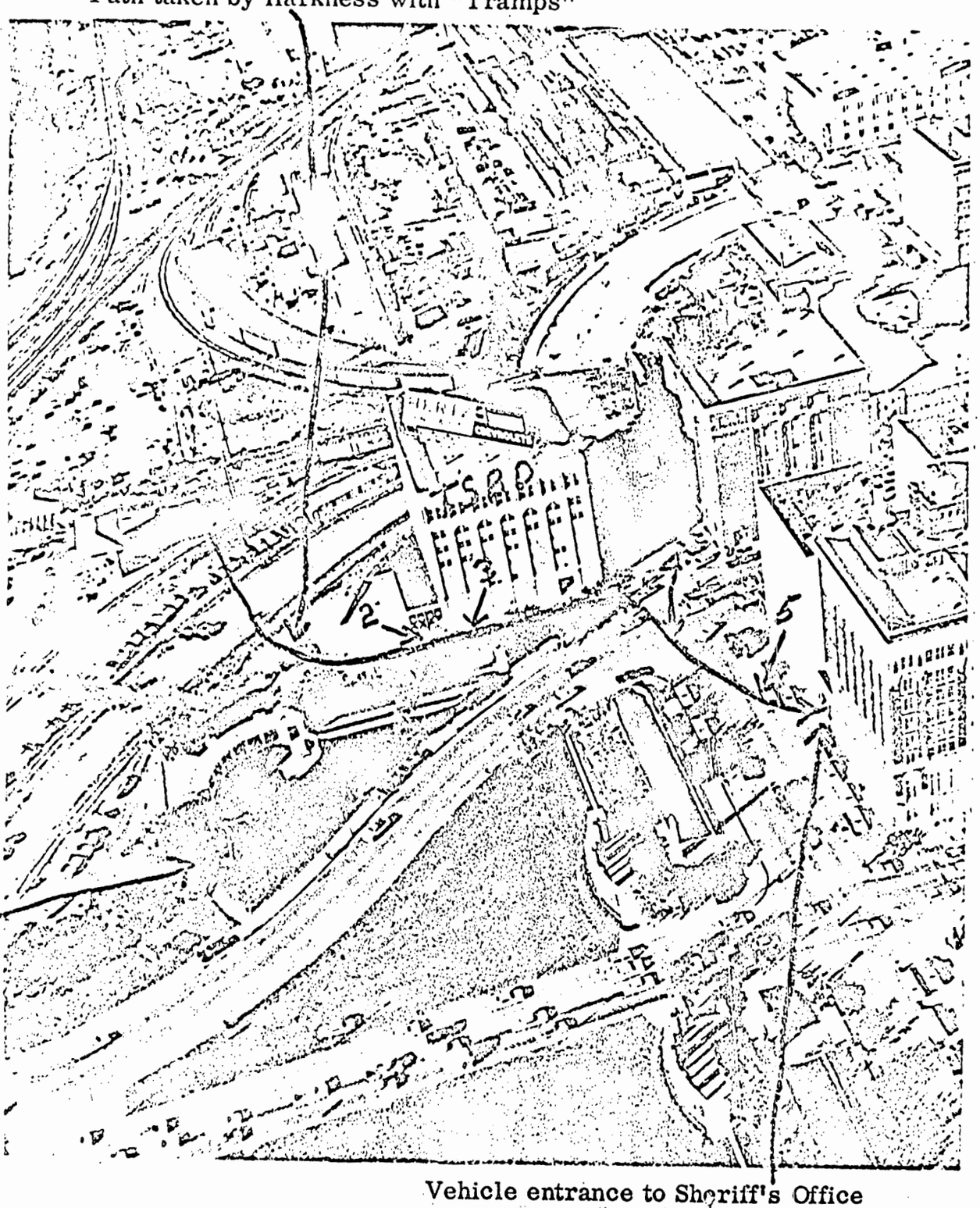


Figure 1

Helicopter view of Dealey Plaza and its buildings, with the path of the arrested "Tramps" marked. Numbers on the photograph indicate where photographs in Figures 2, 3, 4 and 5 were taken.

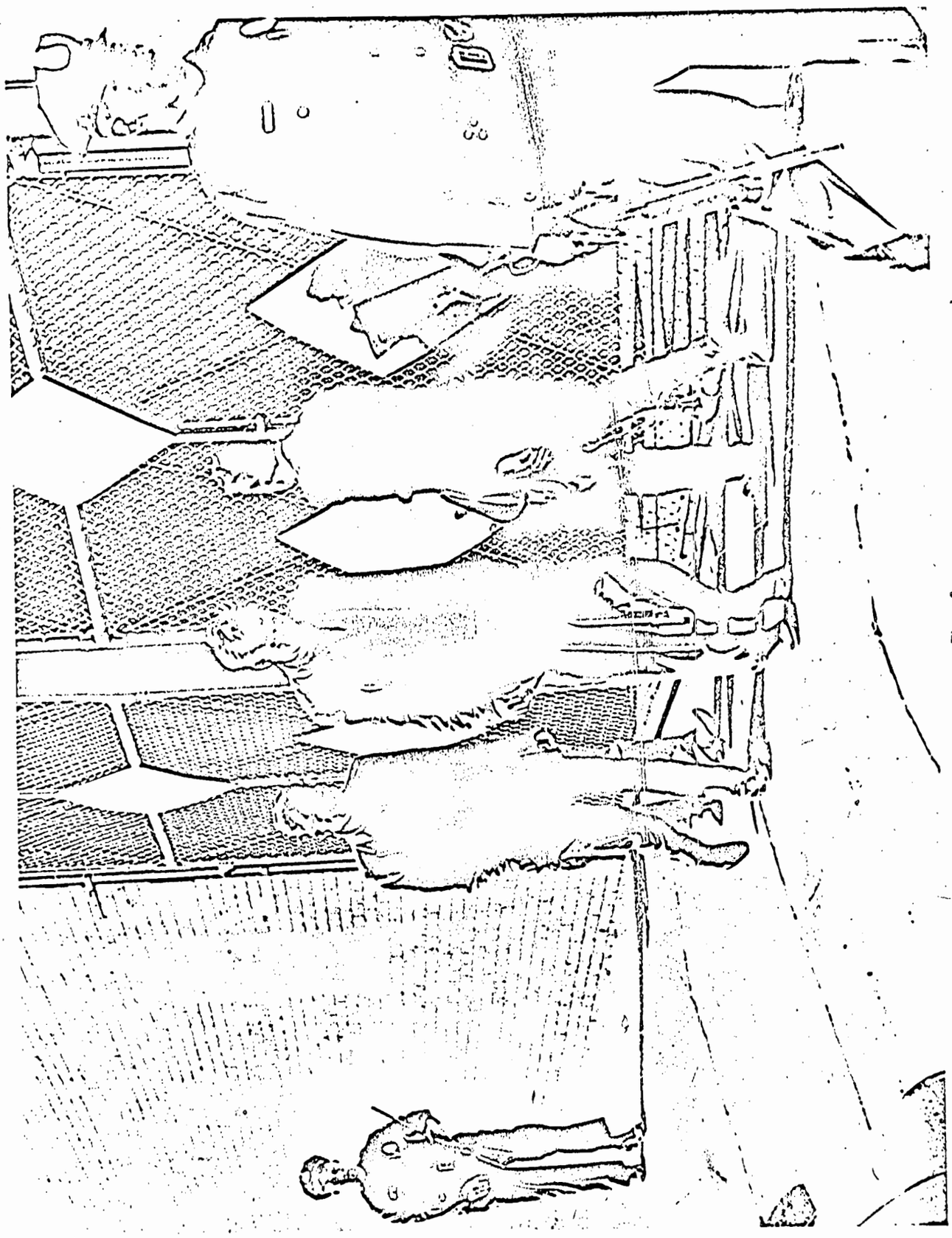
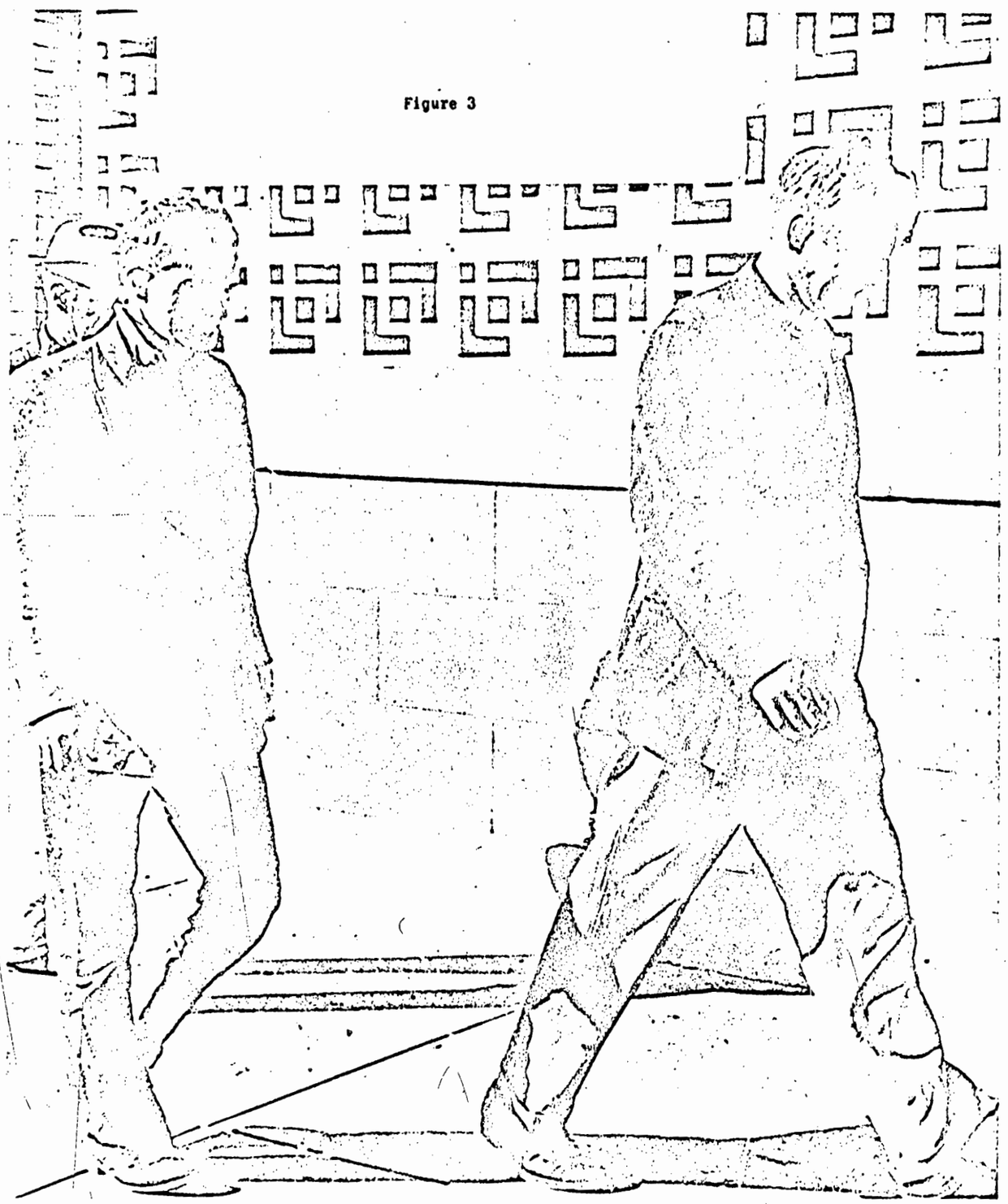


Figure 2

Figure 3



Figures 2, 3, 4 and 5

These four pictures of the "Tramps" and various policemen were taken by George Smith and William Allen (see Table 3, Nos. 195, 197, 251 and 252). Sergeant Harkness appears in Figures 2, 4 and 5 (at the left in Figures 2 and 4, and in the front in Figure 5). The "Phoney" Policeman also appears in these same three figures (at the right in Figure 2, and at the rear in Figures 4 and 5). There is no record of this man being a member of the Dallas Police Force. He is the only Dallas policeman of those appearing in the hundreds of photographs taken Nov. 22 who is wearing an earpiece or radio communication device in his right ear (see Figure 2). Why? He is the only one who is wearing rubbers. Why? His pistol handle appears to be different from Harkness' pistol. Why? It would be interesting to discover this man's identity, and ask him some questions.

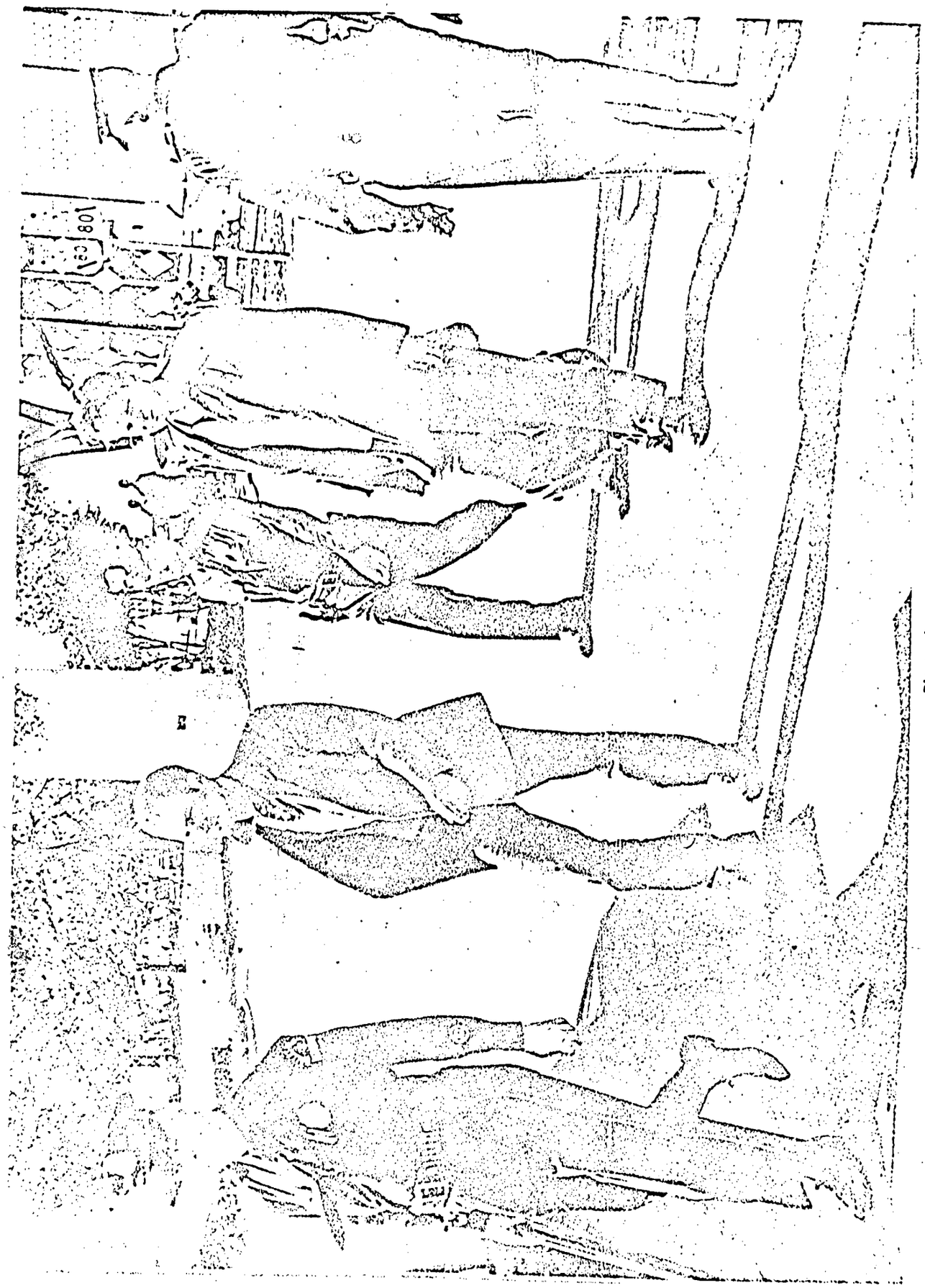


Figure 4

Figure 5

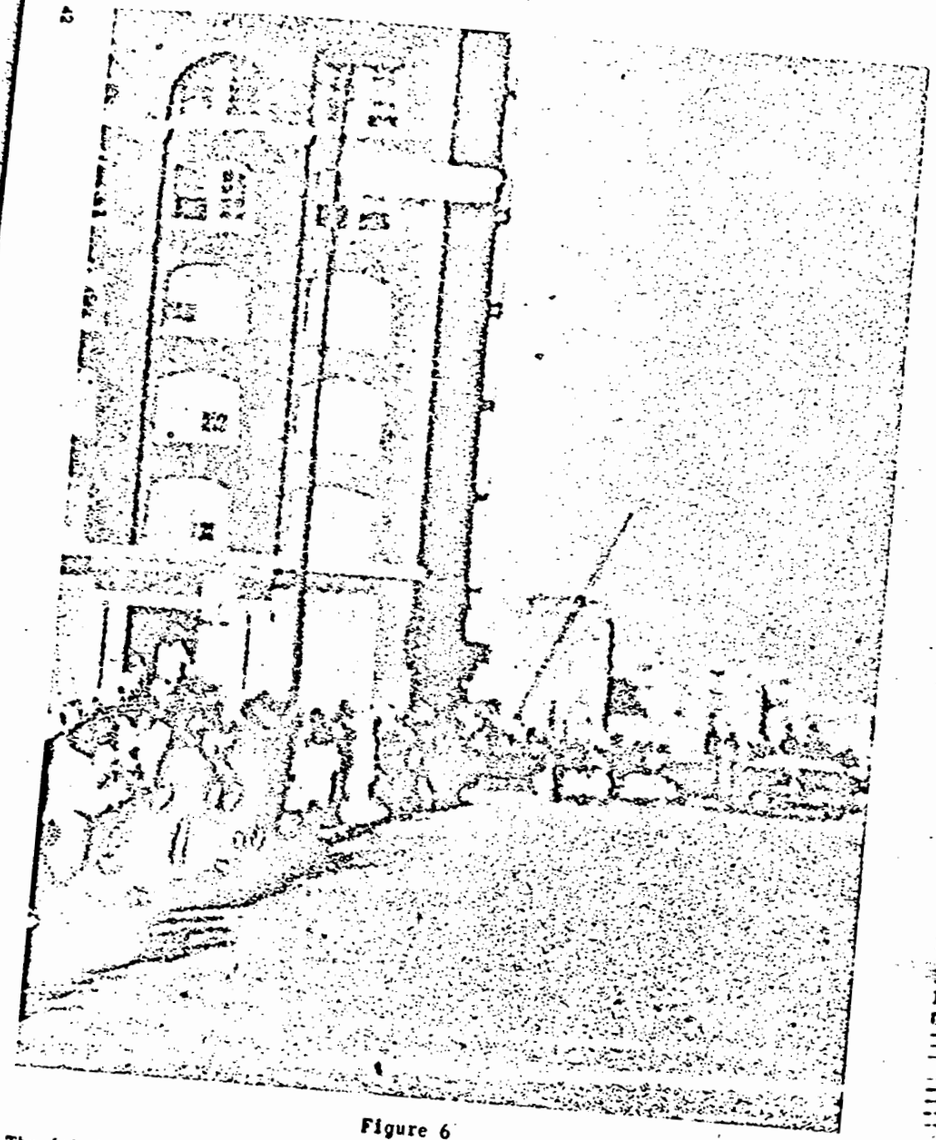


Figure 6

The 6th floor easternmost window of the Texas School Book Depository Building, taken 5.7 seconds before the shooting, showing the window less than one quarter open. (Table 3, No. 8)

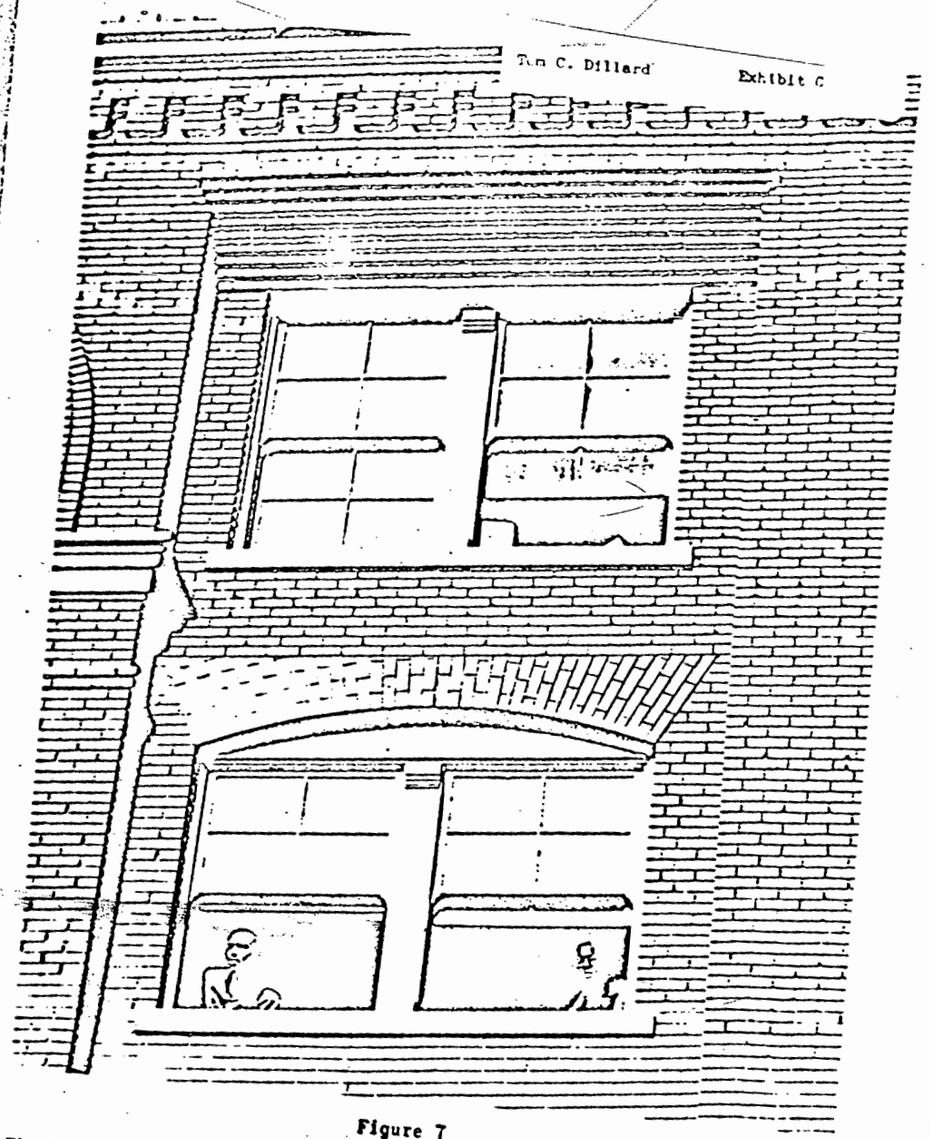


Figure 7

The 6th floor easternmost window of the Texas School Book Depository Building, taken 3 seconds after the shooting, showing no one there. (Table 3, No. 121)

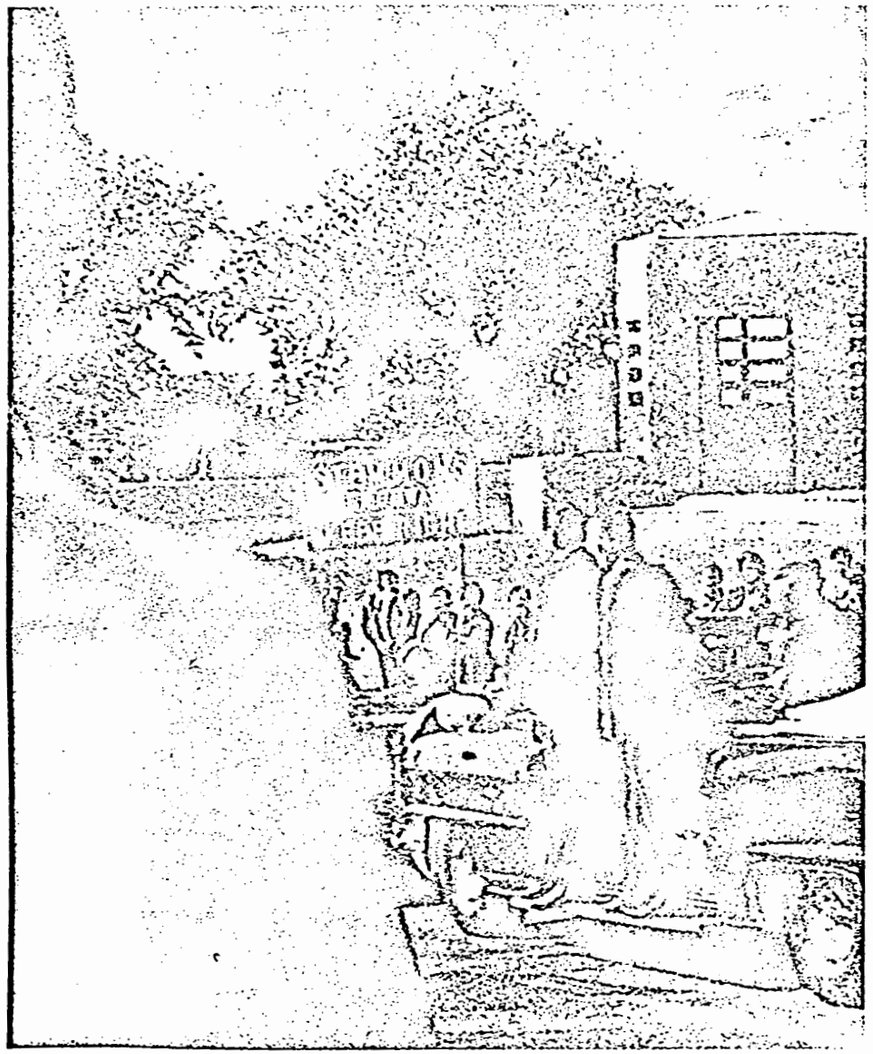


Figure 8

John F. Kennedy on Elm St. about the time of the first shot, Z 186 (Table 3, No. 101). The umbrella belonging to the "Umbrella Man" can be seen at the lower left of the Stemmons Freeway sign. Man #2 can be seen behind the wall to the left of that sign.

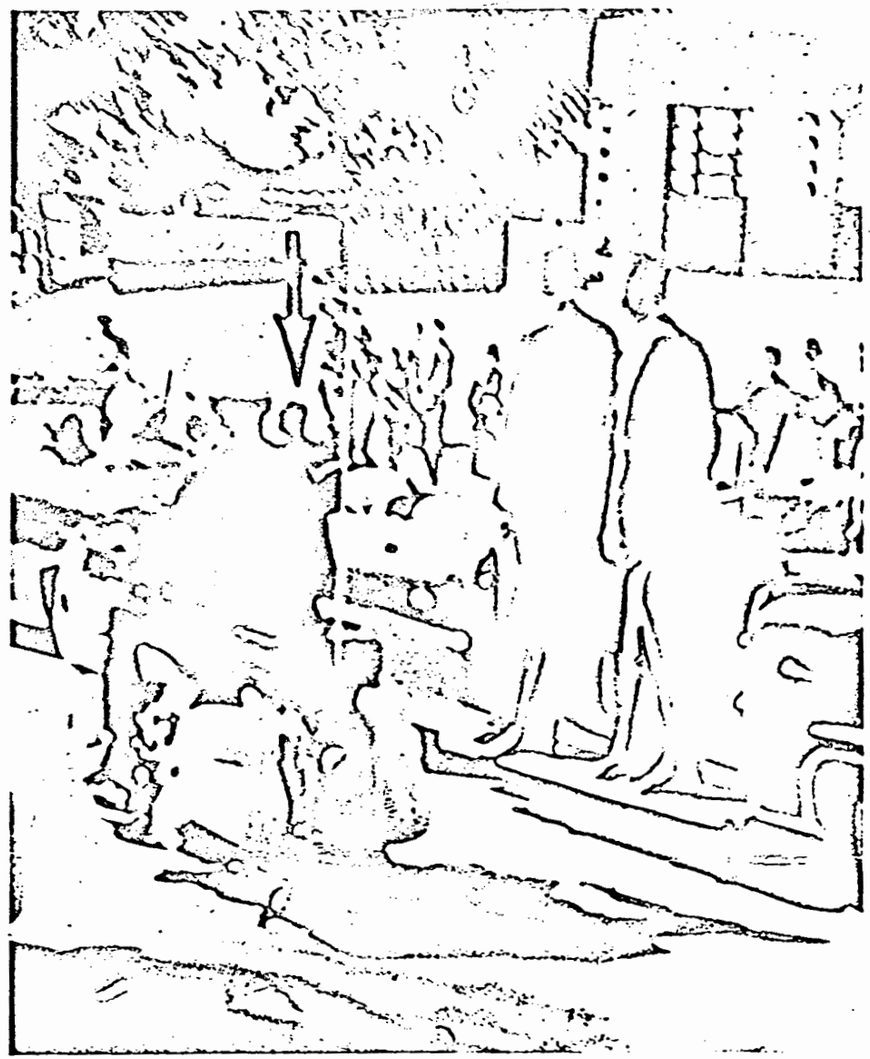
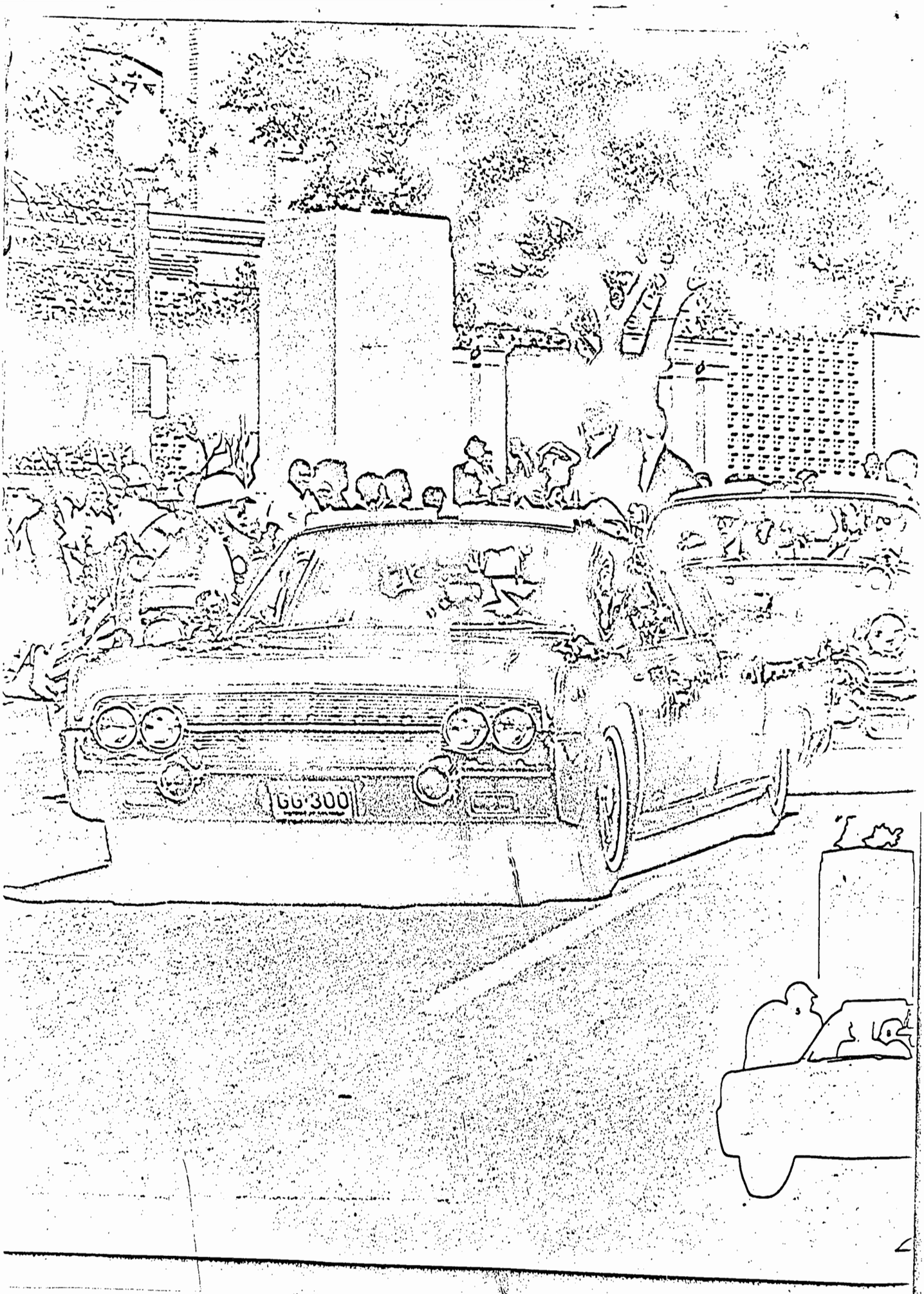


Figure 9

John F. Kennedy after the first three shots and before the fatal shot, Z 202 (Table 3, No. 85). The "Umbrella Man" can be seen at the lower left of the Stemmons Freeway sign, and Man #2 can again be seen at the left of that sign.


GG 300

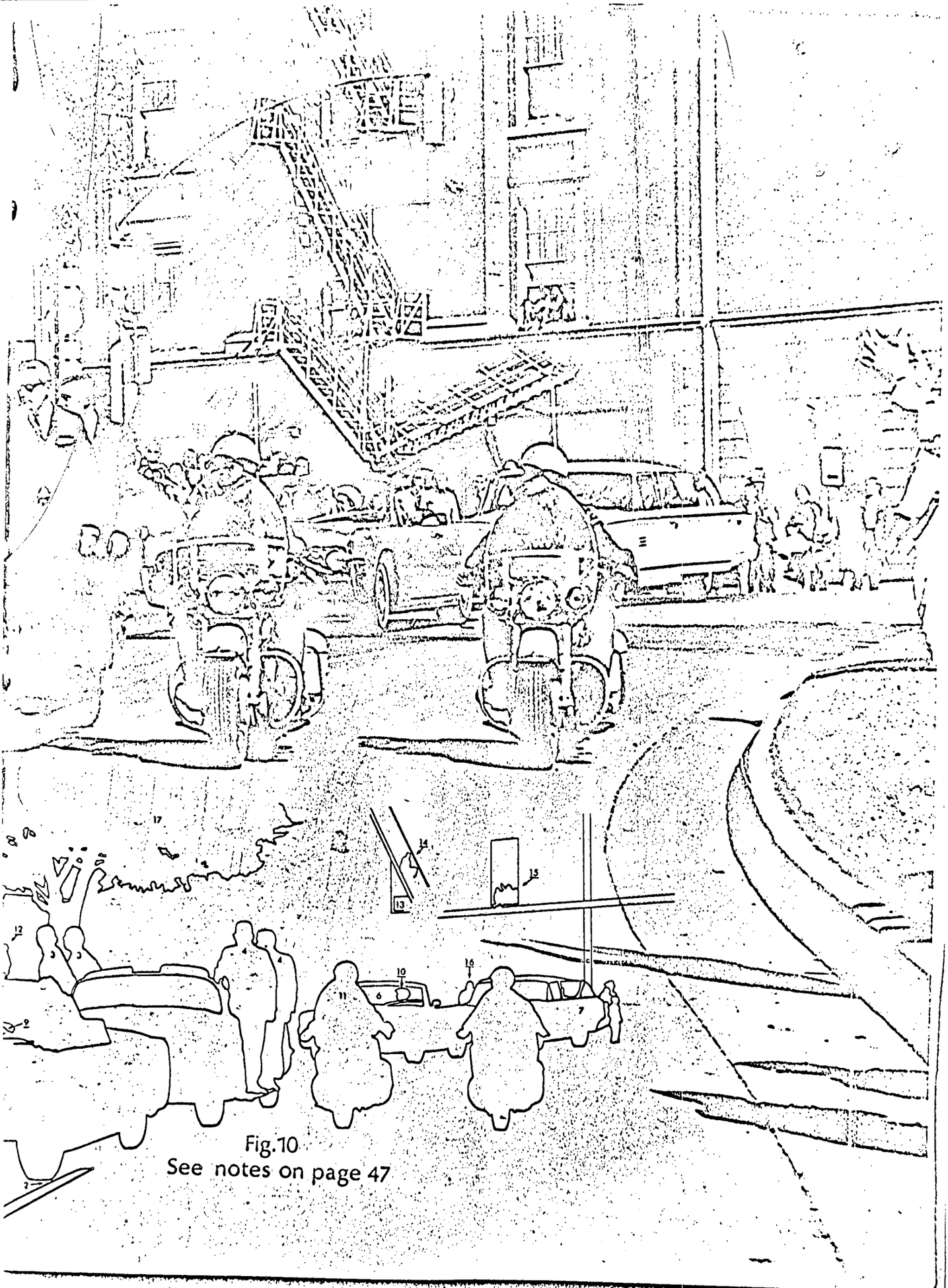


Fig.10

See notes on page 47

Table 1

INDEX AND GUIDE TO LOCATION OF PERSONS AND
SIGNIFICANT OBJECTS IN THE SPATIAL CHART OF DEALEY PLAZA

(See Chart 1, pages 48 and 49)

1. Areas on the Chart. The spatial chart is divided into square areas 20 feet by 20 feet, each labeled by a letter A to K from top to bottom (I is omitted) and a number 1 to 15 from left to right. Locations on the chart are specified by these letter and number labels, indicated on the borders of the map.

2. Person Names. The name of a person in the following index refers to the location of such persons, either in one place if he stayed there for the whole time, or in more than one place if he moved from one location to another. A plural person name refers to two or more persons with the same last name.

3. Numbers. A number following the name of a person refers to the film (or roll) number of a still photograph, or the frame number of a movie sequence taken by such person. Numbers preceded by Z refer to frame numbers of the color movie film taken by Abraham Zapruder standing in area D 7.

4. Motorcade. The leading portion of the motorcade including President J. F. Kennedy is shown diagrammatically 7 to 8 seconds before the first shot. The motorcade is arranged in sequence along Houston St. and Main St. All these cars, of course, were moving and therefore occupied different positions at later times. The only successive locations shown for later positions of the motorcade are the locations of President Kennedy's head in the lead car. These head locations are marked by a sequence of dots along Elm St. These locations were carefully determined by the FBI; they are identified by the frame numbers of the color movie film taken by Abraham Zapruder; these locations were used by the Warren Commission in their investigation. Successive frames were 1/18 second apart.

5. Note. The information shown in the diagram of the motorcade (C-J 14, J 15) is not repeated in this index.

The information shown in the legend (A-E 1-4) is not repeated in this index.

Much of the geographic information (such as locations of trees, white traffic lines, yellow marks on curbs, etc.) is not repeated in this index.

Person or Object	Location
Altgens 2, 3	J 13
Altgens 6 (at Z 255)	F 8
Altgens 7 (at Z 346)	G 8
"Babushka Lady" (who took an entire movie of the motorcade from the opposite side from Zapruder)	F 8
Bell 1, 2	H 11
Bell 3	H 11
Betzner 1	E 13
Betzner 2	C 13
Betzner 3	C 12
Bond, 1 to 3	G 13
Bond, 4 to 9	G 11
Brehm(s)	F 9
Brennan	D 13
bullet mark(s) on curb	J 3, H 6
Commerce St.	K 1-6
compass directions	J 8
Connally, Gov. J. B., back shot (at Z 238)	E 9
Dallas County Criminal Courts Bldg.	F-H 15
Dallas County Records Bldg.	C-E 15
Dallas County Sheriff's Office	H 15
Dal-Tex Bldg.	A 15
Dillard 1	C 13
Dorman, Mrs.	A 11
Elm St.	H 1 to B 15
Elm St. extension	A-B 6-12
former Dallas County Courts Bldg.	off map, see K 15
garage bldg. next to TSBD	A B-10
grassy knoll	G 4 to C 10
Hester(s)	C 7
Hill, Jean	F 9
Holland	H 2
Houston St.	A-K 13-14
Hudson and two friends	F 6
Hughes 1, 2	K 14
Hughes 3	K 12
Hughes 5	K 10
Kennedy behind "the" oak tree, from Z 161 to Z 207	D 10-11
Kennedy at:	
Z 133	C 11
Z 161	D 11
Z 189 (throat shot)	D 10
Z 226 (back shot)	"
Z 238	E 9
Z 255	"
Z 285	"
Z 312 (head shot)	F 8
Z 313 (2nd head shot)	"
Z 346	"
Z 400	G 6
Z 433	H 5
Z 465	H 3
Z 485	H 1
knoll, grassy	G 2 to C 9
Main St.	J 1-15
Man # ... : these were men whose names have not been determined	
Man #1, source of 1st shot at Z 189	D 5
Man #2	E 7
Man #3	E 7
Man #4	E 7
Man #5, source of 6th shot at Z 313	D 6
Man #6, off map in Dal-Tex Bldg, source of 2nd shot at Z 226 and 4th shot at Z 285	see A 15
Man #7	D 8
Man #8, source of 3rd shot at Z 238 and 5th shot at Z 312	A 11
Man with Umbrella	D 8
Martin O	H 13
Martin 1	G 13
Martin 2	C 12
material picked up by Walthers and others	H 6
Moorman	F 9
Muchmore 1	G 13
Muchmore 2	F 11
Newman(s)	E 8
Nix 1, 2a	K 12
Nix 2B	J 10
Oswald's alleged window	A 13
parking area and railroad yard	B-E 4-5
puff of smoke (shown in 9 photos)	E 7
railroad yard and parking area	B-E 4-5
scale in feet	K 8-9
shots, sources of:	
1st	E 5
2nd	A 15
3rd	A 11
4th	A 15
5th	A 11
6th	D 6
Sitzman	D 7
smoke, puff of (shown in 9 photos)	E 7
Stemmons Freeway sign	D 8
Tague (who was hit in the face by a fragment of a shot)	K 3
Texas School Book Depository Bldg. at 411 Elm St. (TSBD)	A 10-13
TSBD, 6th floor easternmost window, from which Warren Commission alleged Lee Oswald fired 3 shots	A 13
Towner, J. 1	C 13
Towner, T. 1	C 13
Towner, T. 2	D 12
"Umbrella" Man	D 8
Willis 5, 6	D 11
Zapruder (location of Abraham Zapruder during the entire color movie which he took)	D 7

NOTES FOR FIGURE 10, PAGES 44 AND 45

An excellent example of the many things that can be learned even from a single photograph, is provided by Figure 10. This photograph was taken by a professional Associated Press photographer, James Altgens (Table 3, No. 57). This photograph was used by the Warren Commission as Yarborough Exhibit A, Vol. XXI, pages 701-702. However, the Warren Commission staff did not point out very much of the pertinent information contained in the photograph.

President Kennedy (#1) appears in the limousine partially hidden by the rear view mirror. Three shots have already struck him and Governor Connally by the time this photograph was taken. The exact timing of the photograph is established by the position of the left front tire of the limousine with respect to the white road stripe on Elm St. (#2) By comparing this position with the corresponding positions of the limousine as the limousine appears in the Zapruder film, it has been determined that this photo was snapped at exactly the same instant as Zapruder's frame 255.

Since shots were fired at Z189, Z226, Z230 and Z2313, the Altgens photo was exposed 66 Zapruder frames after the first shot (3.6 seconds) and 58 frames before the last shot (3.2 secs).

In view of the fact that only 3.6 seconds had elapsed following the first shot, it is not surprising that very few people in the picture show signs of realizing that anything has happened. Note the smiling faces and applauding hands along the curbs.

Some of the Secret Service men reacted slowly. The two men on the right-hand running board of JFK's followup car (#3) obviously have heard something and are looking back. The two on the left-hand running board (#4) seem to be oblivious to everything. The one in front, Clint Hill, was later to run up to the limousine and push Mrs. Kennedy back into the rear seat when she climbed up on the back hood of the car.

The motorcycle policeman next to JFK on the right, D. L. Jackson (#5) seems to realize JFK has been hit; at any rate, he is looking right at JFK. The fatal shot, 3 seconds later, zoomed from the grassy knoll right over Jackson's helmet and struck JFK on the right side of his forehead. Jackson was never interviewed by anyone and seems to have completely disappeared from the Dallas police force shortly after the assassination.

Lyndon Johnson's secret service men, on the other hand, reacted very fast. Rufus Youngblood testified that he pushed Johnson down on the floor of the car as soon as he heard the shots. The positions where Youngblood and Johnson would have been sitting in the photo (#6) are vacant, proving that Youngblood did indeed do just what he said, in 3.6 seconds. Agent Kivett in Johnson's follow-up car can also be seen reacting quickly (#7) as he opens the left rear door, preparing to jump out.

Governor Connally had been hit at Z frame 238, about one second before the photo was taken. He can be seen with his face contorted, turned to his right (#8), and slumping toward the sill of the limousine. Mrs. Kennedy had, by this time, turned to see her husband in pain, and grasped his elbow with her white gloved hand (#9). Secret Service Agent Kellerman didn't react until well after this photo.

This is not too surprising since Mrs. Lyndon B. Johnson (Lady Bird) (#10) is smiling at the crowds as if nothing had happened, even though her husband is lying on the floor next to her with Agent Youngblood on top of him.

Policeman Hargis (#11) just to the left and rear of the Presidential limousine doesn't seem to know anything is wrong, although he could be looking at JFK. Later he was hit in the face with blood and grey matter from the fatal shot which came from the right front and drove the fleshy debris of Kennedy's head back and to the left toward Hargis.

The only reason the Altgens photo appears as a Commission Exhibit is that some sharp-eyed critic noticed a man who looked just like Lee Harvey Oswald standing in the doorway of the Texas School Book Depository Building in the background of the photo (#12). The Commission was therefore forced to consider this point and they contended that the man was Billy Lovelady, who was an associate of Oswald's at the building.

Four years later, I was able to prove that the Warren Commission was right, by using several other photographs in combination. Until then, the controversy still raged among Commission defenders and researchers.

One of the most significant parts of the Altgens photo is the part showing the Dal Tex building in the background and an open, darkened window on the second floor (#13). Harold Weisberg, one of the researchers, first called attention to this window and the possibility that one or more shots might have been fired from it.

A man (#14) appears in this photo, fallen back on the fire escape directly above the open window. Just five seconds earlier in the Hughes film sequence, he was sitting in a normal position. This man has not been found to be interviewed. The group of three people (#15) in the window to the south of him have not realized anything remarkable has happened and are waving and clapping and looking at the President. The probable explanation of the man's action was his much closer proximity to the noise directly below him created by a shot from the Dal-Tex window. The second shot most probably came from this window as well as the curb shot.

A Latin-appearing man who closely resembles one of the Cubans known to be involved in the New Orleans part of the conspiracy appears in the same vicinity (#16). Some researchers claim that he is using a microphone and a two-way radio. However, I believe these objects to be part of the opened vent window on the Johnson secret service follow-up car.

The large oak tree (#17) is the one referred to above in this article, as the tree which blocked the view of Kennedy from the 6th floor easternmost window in the Texas School Book Depository, at the time of the first shot (Z 189). The Warren Commission Report admits the oak tree blocked the view from Z 161 to Z 207 (see Chart 1 and Chart 2).

SPATIAL CHART of NORTHERN HALF of

DEALEY PLAZA

DALLAS, TEXAS

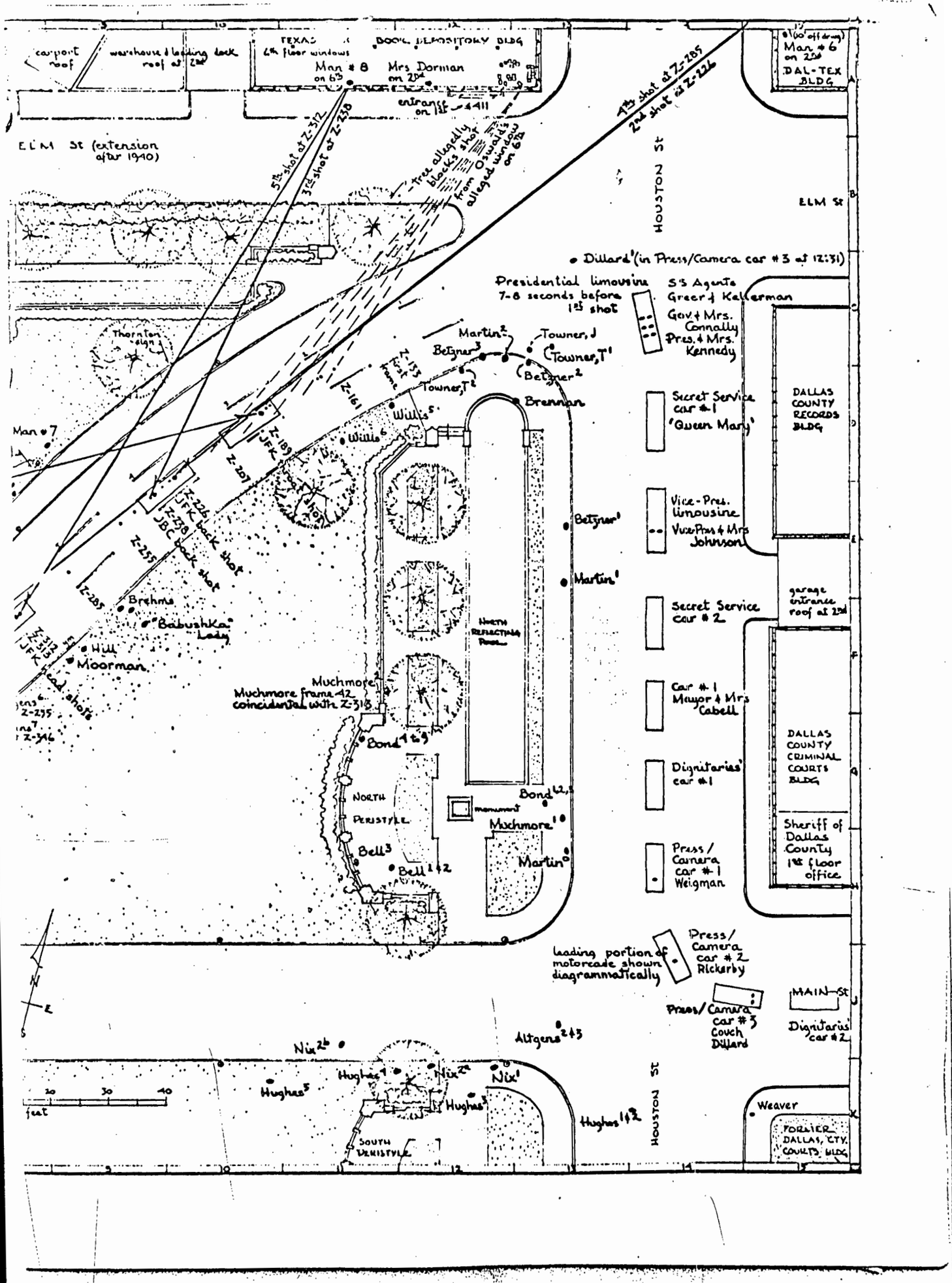
showing photographers, positions of John F. Kennedy's head, objects & events surrounding 12:30 pm, 22 Nov. 1963

LEGEND

- Z-133 : Zapruder film frame number & dot locating JFK's head
- ——— : probable line of fire to hit
- Man # : men whose names have not as yet been determined
- • : people
- ⊙ : lamp post
- SOL : storm sewer inlet
- ym : yellow mark on curb
- ≈≈≈ : hedge, diagrammatic • not to scale
- ⁂ : tree, diagrammatic • not to scale
- ⁘ : grass area
- — : on steps • up
- ═══ : window
- JBC : John B Connally, Gov. of Texas

R L Sprague · photo-interpreter
R B Cutler · researcher & delineator
prepared for COMPUTERS & AUTOMATION
E C Berkeley · Editor
© 1970 · Berkeley Enterprises Inc.
Newtonville, Mass., 02160, USA
First Printing · May 1970

dirt road
wire fence
RAILROAD YARD and PARKING AREA
old wood ties used as bumper & curb
Hesters
car
Sitzman
Zapruder
1st fence posts
5' stockade fence
Man #5
Man #4
Man #1
Man #3
Man #2
1st shot at Z-189
Z-313
puff of smoke
Hudson & Two friends
5' stockade fence
bridge abutment railing
Ft Worth sign
GRASSY
tunnel wall
pier
Z-400
bullet mark (?) material picked up by Walthers & others
Holland on overpass
Traffic lines
Z-433
Z-485
ELM St
TRIPLE UNDERPASS
MAIN St.
line of bridge railing (over)
Tague
bullet scar in curb = shot that missed at Z-285
COMMERCE St


carport roof
warehouse & loading dock roof at 2nd
TEXAS 4th floor windows
BOOK DEPOSITORY BLDG
Man # 8 on 6th
Mrs Dorman on 2nd
entrance on 1st - 411
ELM St (extension after 1940)
5th shot at Z-312
3rd shot at Z-258
tree allegedly blocks shot from Oswald's alleged window on 6th
7th shot at Z-285
2nd shot at Z-226
Man # 6 on 2nd
DAL-TEX BLDG
HOUSTON St
ELM St
Dillard (in Press/Camera car # 3 at 12:31)
Presidential limousine 7-8 seconds before 1st shot
SS Agents Greer & Kellerman
Gov. & Mrs. Connally
Pres. & Mrs. Kennedy
Secret Service car # 1 'Queen Mary'
DALLAS COUNTY RECORDS BLDG
Vice-Pres. limousine
Vice-Pres & Mrs Johnson
Secret Service car # 2
garage entrance roof at 2nd
Car # 1 Mayor & Mrs Cabell
DALLAS COUNTY CRIMINAL COURTS BLDG
Dignitaries' car # 1
Sheriff of Dallas County 1st floor office
Press / Camera car # 1 Weigman
Press / Camera car # 2 Rickerby
leading portion of motorcade shown diagrammatically
Press / Camera car # 3 Couch Dillard
MAIN St
Dignitaries' car # 2
Altgens 2 & 3
Nix 2b
Nix 2a
Nix 1
Hughes 5
Hughes 4
Hughes 3
Hughes 1 & 2
Weaver
FORMER DALLAS, CTY. COURTS BLDG
SOUTH PERISTYLE
20 30 40 feet
Thornton sign
Martin 2
Towner, D
Towner, T 1
Betzner 3
Betzner 2
Towner, T 2
Brennan
Willis 5
Willis 6
Z-153 frame
Z-161
Z-189 JFK
Z-207
Z-224 JFK back shot
Z-238 JBC back shot
Z-255
Z-285
Brehm
Babushka Lady
Hill
Moorman
Z-313 JFK
Z-314 JFK
Z-315 JFK
end shots
Z-295
Z-316
Muchmore 2
Muchmore frame 42 coincidental with Z-313
Bond 1 & 3
NORTH REFLECTING POOL
NORTH PERISTYLE
monument
Bond 2
Muchmore 1
Martin 4
Bell 3
Bell 1 & 2
Betzner 1
Martin 1

The "Umbrella Man"

Some interesting things happen when one begins to analyze the many pictures taken by different photographers from different directions standing in different places, but all taken in the same small interval of 10 or 15 seconds, and all in the same small area of Dealey Plaza and its environs.

One of the things that happens is that the pictures confirm each other, and show what people were doing.

One outcome of the analysis is that we see other persons who also were taking pictures; then they too can be identified and located, and their pictures also can be found, and copies of their pictures can be obtained from them also.

An example of a result of even further analysis of the pictures in three dimensions of space and one dimension of time is that we discover the story of "the man with the umbrella".

When we first see the "man with the umbrella", he is holding it closed. This is when the Kennedy car rounds the corner from Houston St. into Elm St. Next he is holding it open and low over his head; the time is shortly before the first shot (see Fig. 9). Note that the weather is sunny, "slight breezes and gusts"; it is a sunny November day in Dallas; the time is noon; the temperature is 68° Fahrenheit, and there is no ordinary reason at all for holding an open black umbrella over one's head. The rain that had occurred earlier in the morning stopped about ten twenty, and the temperature is not high enough to be shading oneself. No one else in all of Dealey Plaza appears to have been holding an open umbrella. Next, he raises the umbrella, still open, high up, about two feet higher; this is shortly before the last shot and the umbrella shows up in the Zapruder film. A few seconds after the last shot, we see him holding the umbrella folded (Table 3, No. 259). Then a few minutes later, we have three pictures of him, still standing in the same place, still holding the umbrella folded up. (Table 3, Nos. 48, 49, and 50) Whereas everybody else in that area has dispersed rapidly, he is still standing in the same place, looking in all directions. He has stood in a position to have been seen from all the places from which shots were fired. Yet he is in front of the Stemmons Freeway sign — so that people on the western side of the sign can't readily see him, and people in front of the sign are facing away from him.

We can draw two tentative conclusions:

1. Visual coordination as well as radio coordination of the firing teams was necessary, because of the separation of the team members by several hundred yards, the noise and confusion of the motorcade, and the crowd of spectators. The "man with the umbrella" might be the visual coordinator.
2. Also, it was likely that an on-the-scene commander was required in order to make the last-minute go-no-go decision. This man may have been the on-the-scene commander.

The Warren Commission did not see the "umbrella man" in the photographs, did not find him, did not interview him, and did not enter him in any of its records anywhere. Neither did the FBI nor the Dallas authorities. Again, one asks why? It was a reasonably simple matter for an amateur to find him in the photographs. Josiah Thompson found him and mentioned him in his book, Six Seconds in Dallas (see pages 227-228). Thompson even appealed for him, if innocent, to come forward and identify himself. That, so far, has not happened.

Table 2

SOME IMPORTANT PHOTOGRAPHS ACQUIRED BY THE FBI AND UNAVAILABLE

Main No.	List Type*	Name of Photographer	Roll and Sequence No.	Subject	Time
51	PB	Mary Moorman	1	TSBD sixth floor window, before Kennedy rounded the corner	10 to 15 sec. before shots
93	PB	Willis	13	Man arrested outside of the Dal-Tex Building	within 20 min. after the shots
375	PB	Foley	1	TSBD sixth floor window, with two men in the window, neither of them Oswald	about 10 am, Nov. 22, 1963
376	MB	Babushka Lady	1	Movie of JFK procession (from the other side of the street from Zapruder)	about 10 to 17 sec. before until 7 to 10 sec. afterwards
378	PB	James Powell, Army Intelligence, Dallas	1	TSBD	about the time of the shots
494	PB	Similis	1	TSBD, showing the sixth floor window empty except for box	between first and last shots
495	PB	Similis	2	Kennedy further down on Elm St.	about 22 sec. after the shots

*P = still photograph; M = movie; B = black and white

The "Babushka Lady's" Movie

As mentioned above, the pictures show other persons also taking pictures. One of these other persons has been called the "Babushka lady" because she is wearing a babushka (a triangular head scarf). She took a movie as did Zapruder, but she took hers from the left hand side of the motorcade; and she was able to take all the scenes beginning with the rounding of President Kennedy's car from Houston St. on to Elm St., and ending with the dead president's limousine passing under the overpass to go to the hospital.

Her movie would be particularly valuable for it would probably show all that was going on on the grassy knoll.

She may have been Mrs. Beck, at the time a student at the University of Michigan at Ann Arbor, who was visiting in Dallas. After her movie was developed, Mrs. Beck talked about it to the Detroit Free Press. Then the Detroit FBI attempted to find her. The information at present stops there. However, from observing similar actions of the FBI, one would suspect that they found her, obtained her movie, and either destroyed it or filed it away unavailable to researchers. (See Table 2.)

Until it can be confirmed that the "Babushka Lady" is Mrs. Beck, their films are listed separately in Table 3 (Nos. 376 & 500).

Some Other Conclusions

A great many other conclusions can be drawn from or are significantly supported by the photographic evidence. A few examples are:

1. About ten men are shown being arrested.
2. At lenst two other rifles are shown being found before Oswald's rifle was found.
3. "Oswald" is shown in two fake photographs with him holding a rifle. When Oswald was shown the photos he said, "That's my head but somebody else's body." That Oswald was right in this case has been clearly demonstrated by Fred Newcomb, a Los Angeles researcher.
4. Oswald did not shoot Officer J. D. Tippit of the Dallas police force; two other men did. Oswald was not near the shooting site at the time.
5. Oswald's supposed discovery and arrest in the Texas Theatre, the movie theater where he went, was staged and prearranged.

Continuing analysis and continued searching for more photos will no doubt produce new conclusions and findings for some time to come.

(Text continued on page 56)

Chart 2

SCHEMATIC TIMING CHART OF PHOTOGRAPHS, MOVIES, AND EVENTS IN DEALEY PLAZA AROUND 12:30 PM NOVEMBER 22, 1963

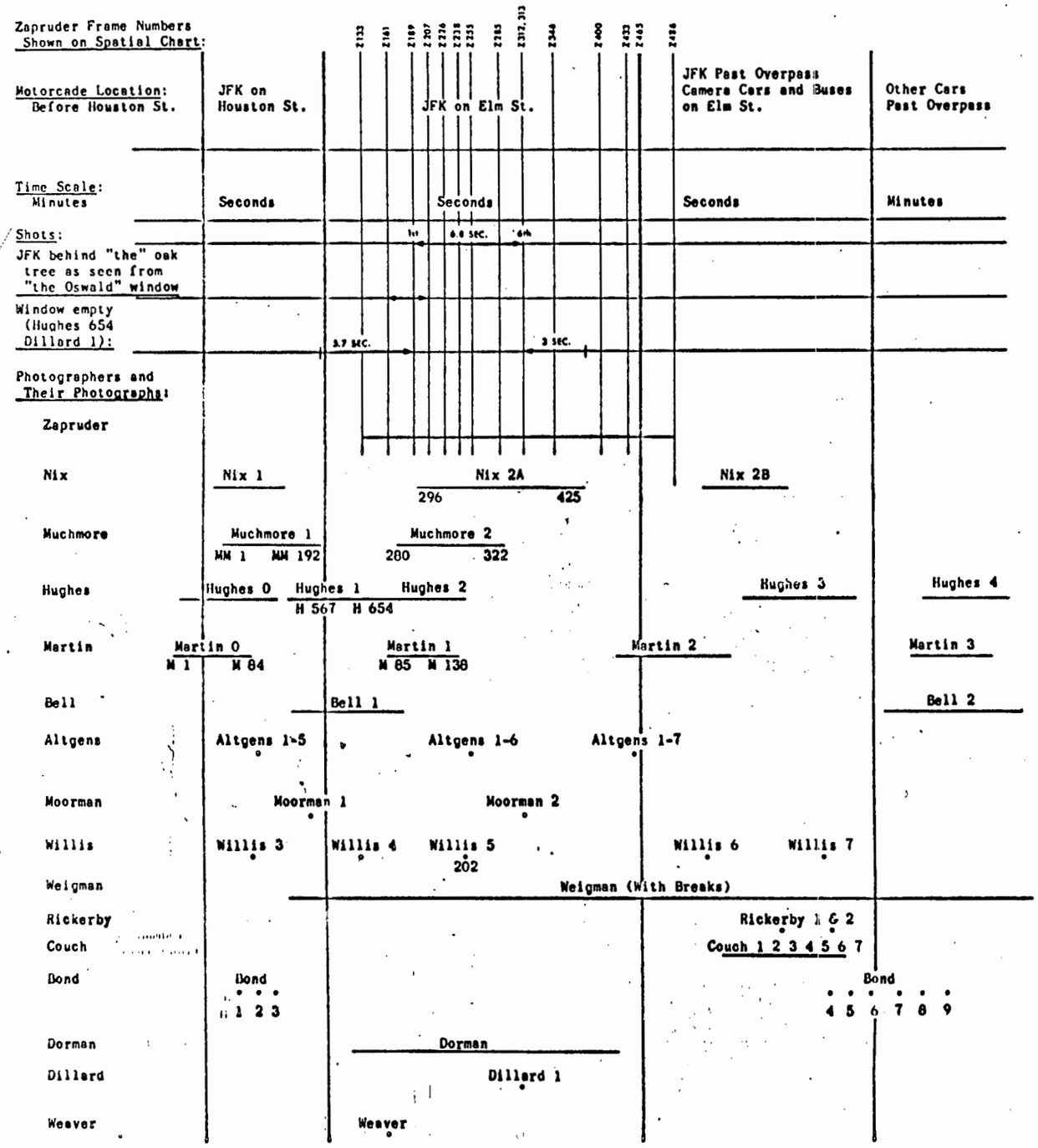


Table 3

MAIN LIST OF OVER 500 PHOTOGRAPHS AND OVER 75 PHOTOGRAPHERS

Photo No.	Type	Photographer Name & No.	Seq. No.	Photo Shows
1	MC	Zapruder,1	1	JFK on Elm-Houston St. to Overpass
2	MC	Nix,2	1	JFK on Houston St. before shots
3	MC	"	2A	JFK on Elm St. just before, during & after head shot
4	MC	"	2B	Grassy knoll and cars on Elm just after head shot
5	MC	Muchmore,3	1	JFK on Houston St.
6	MC	"	2	JFK on Elm just before, during & after head shot
7	MC	Hughes,4	0	JFK on Houston from Main St. 2/3 of way to Elm
8	MC	"	1	JFK on Houston & Elm & TSBD 6th floor window empty
9	MC	"	2	Camera cars on Houston St. - Man on Dal Tex fire escape, sitting
10	MC	"	3	Grassy knoll after shots
11	MC	"	4	Grassy knoll after shots
12	MC	"	5	County Courts Bldg., Dal Tex & Main & Houston
13	MC	"	6	Parking Lot
14	MC	"	7	Plaza looking south from arcade
15	MC	"	8	Parking Lot
16	MC	"	9	TSBD Bldg. - top
17	MC	"	10	TSBD Doorway & Dal Tex
18	MC	Martin,5	0 *2	JFK on Houston St. (from DCA Film)
19	MC	"	1	JFK in front of TSBD Bldg.
20	MC	"	2A	Grassy knoll & Elm St. after shots
21	MC	"	2B	Grassy knoll & Elm St. after shots
22	MC	"	3	Parking Lot
23	MC	"	4	Cop on Motorcycle with negro
24	MC	"	5	B. Lovelady in front of TSBD
25	MC	"	6	C. Brehm interviewed on Elm St.
26	MC	"	7	View North on Houston from Elm
27	MC	"	8	View North on Houston & TSBD doorway
28	MC	"	9	Front of TSBD - Cops with shotguns
29	MC	"	10	Dal Tex Bldg - Cop with shotgun - Police cars
30	MC	Mantesano,6	0	L. Florer under arrest at Houston & Elm
31	MC	"	1	Top of TSBD - 2 cops on 7th floor fire escape
32	MC	"	2	Houston St. between TSBD and Dal Tex - Rifle being examined
33	MC	Bell,7	1	JFK on Houston St.
34	MC	"	2	JFK in front of TSBD
35	MC	"	3	JFK approaching triple overpass on Elm St.
36	MC	"	4	Grassy knoll area just after shots
37	MC	"	5	Grassy knoll area after shots
38	MC	"	6	Center of Plaza after shots
39	MC	"	7	Grassy knoll area
40	MC	"	0	Plaza from Bldg. on south later in day
41	MC	"	9	Plaza from Bldg. on south later in day
42	PC	Bond,8	1	Motorcycles rounding Houston & Main
43	PC	"	2	JFK rounding Houston & Main
44	PC	"	3	JFK on Houston
45	PC	"	4	Grassy knoll & Elm St. after shots
46	PC	"	5	Grassy knoll & Elm St. after shots
47	PC	"	6	Grassy knoll & Elm St. after shots
48	PC	"	7	Grassy knoll after shots
49	PC	"	8	Grassy knoll after shots
50	PC	"	9	Grassy knoll after shots
51	PB	M. Moorman,9	1	Motorcycle cop rounding corner Elm & Houston
52	PB	" *3	2	Grassy knoll & JFK at time of head shot
53	PB	Altgens,10	1-2	Lead Motorcycles in Motorcade on Main St.
54	PB	"	1-3	JFK approaching Houston St. on Main
55	PB	"	1-4	JFK turning corner at Houston & Main
56	PB	"	1-5	JFK halfway down Houston toward Elm
57	PB	"	1-6	JFK after first three shots & before fatal shot. Open window, fire escape, Dal Tex
58	PB	"	1-7	JFK approaching triple overpass. C. Hill on car
59	PB	"	1-8	Arcade & knoll from South of Elm after shots
60	PB	"	2-4	TSBD 5:06 PM November 22
61	PB	"	2-5	TSBD 5:06 PM Clock shows
62	PB	"	2-6	TSBD 5:06 PM Clock shows
63	PB	"	2-13	TSBD from same position as Altgens 1-6
64	PB	"	2-14	TSBD from same position
65	PB	"	2-15	TSBD from same position 5:16 PM Clock shows
66	PB	"	2-19	TSBD from same position 5:19 PM Clock shows
67	PB	"	2-20	TSBD from same position 5:19 PM
68	PB	Altgens	2-20	TSBD from same position 5:19 PM
69	PB	"	3-7	TSBD from center of plaza 5:07 PM Clock shows
70	PB	"	3-8	TSBD from center of plaza
71	PB	"	3-9	TSBD from center of plaza
72	PB	"	3-10	TSBD from center of plaza
73	PB	"	3-11	TSBD from center of plaza
74	PB	"	3-12	TSBD from center of plaza
75	PB	"	4-10	Triple overpass from same position as Altgens 1-6
76	PB	"	4-11	Triple overpass from same position
77	PB	"	4-12	Triple overpass from same position
78	PB	"	4-16	TSBD 5:16 PM from same position as Altgens 1-6 Clock shows
79	PB	"	4-17	TSBD 5:16 PM from same position as Altgens 1-6 Clock shows
80	PB	"	4-18	TSBD 5:16 PM from same position as Altgens 1-6 Clock shows
81	PC	Willis,11	1	JFK on Main St.
82	PC	"	2	JFK on Houston St.
83	PC	"	3	JFK on Houston St.
84	PC	"	4	JFK in front of TSBD
85	PC	"	5	JFK after first shot
86	PC	"	6	Elm St. & grassy knoll after shots
87	PC	"	7	Elm St. & grassy knoll after shots
88	PC	"	8	TSBD Doorway
89	PC	"	9	Houston St. looking N. from Elm. TSBD & Dal Tex
90	PC	"	10	TSBD front - Doorway & 5 eastern windows - Arrest and possible rifle
91	PC	"	11	Houston St. looking north from Elm St.
92	PC	"	12	TSBD (all of it) from Houston & Main
93	PC	"	13	Man arrested outside Dal Tex Bldg.
94	PC	"	14	White station wagon on Elm about 12:45
95	PC	"	15	Scenes around TSBD
96	PC	"	16	Scenes around TSBD
97	PC	"	17	Scenes around TSBD
98	PC	"	18	Scenes around TSBD
99	PB	Betzner,12	1	JFK on Houston
100	PB	"	2	JFK in front of TSBD
101	PB	"	3	JFK on Elm about time of first shot
102	PB	Bothun,13	1	JFK near Love Field
103	PB	"	2	JFK on Main approaching Houston
104	PB	"	3	Lead motorcycles approaching Houston
105	PB	"	4	JFK rounding corner Main & Houston
106	PB	"	5	Arcade after shots
107	PB	AP Photographer,14	1	Group of photos taken outside Parkland Hospital
108	PB	AP Photographer,15	1	Copy of Moorman 2 - Clearer than published
109	PB	AP Photographer,16	1	Officers & newsmen inside TSBD at 6th floor window
110	PB	AP Photographer,17	1	Group of officials and Pickup truck on Stemmons Freeway - TSBD in background - Taken from moving car - 1:04 PM. Nov. 22
111	PB	"	2	Triple overpass from same car on west
112	PB	"	3	Closeup of overpass - 1:04 PM from car approaching
113	PB	"	4	TSBD, Dal Tex, County Records Bldg. from moving car on Main St. near overpass - 1:04 PM
114	PB	"	5	TSBD, Dal Tex from car on Main St. - 1:04 PM Clock shows
115	PB	"	6	Grassy knoll & Triple overpass from car on Main St.
116	PB	"	7	TSBD, Dal Tex from car on Main - 1:04 PM - View of activity around corner of Elm & Houston
		D. Miller,18	1	JFK early in motorcade
		"	2	JFK early in motorcade
117	PB	"	3	JFK on Stemmons Freeway - Possible man with rifle in background - Corham sign shows JFK's-C. Hill's foot sticking out of car
118	PB	Rickerby,19	1	(Life) Arcade & West Cupola after shots (3 people)
119	PB	"	2	Arcade & Photographers taking pictures (Cam 2)
120	PB	Dillard,20	1	TSBD 6th floor window from Cam 3 (Dallas Morning N)
121	PB	"	2	TSBD 6th floor window from Cam 3

Photo No.	Type	Photographer Name & No.	Seq. No.	Photo Shows
122	PB	Dillard,20	3	Overpass & camera cars on Elm
123	PB	"	4	1:45 PM - Hand pointing to bullet mark
124	PB	J. Laird,21	1	(Dallas Morning News) Scene at Parkland Hospital
125	PB	"	2	11 contact prints of TSBD late on November 22
126	PB	"	3	11 contact prints of Parkland Hospital
127	PB	"	4	8 contact prints at Police station
128	PB	"	5	16 contact prints of scenes around Parkland Hospitnl
129	PB	J. Beers,22	1	(Dallas Morning News) Lt. Montgomery carrying large paper bag
130	PB	"	2	Lt. Montgomery with bag
131	PB	"	3	Lt. Johnson carrying Dr. Pepper bottle
132	PB	"	4	Boxes inside TSBD 6th floor window
133	PB	"	5	W.E. Barnett & J.M. Smith (cops)
134	PB	"	6	Larry Florer on Houston St.
135	PB	"	7	Area where Oswald's rifle found
136	PB	"	8	Area where Oswald's rifle found
137	PB	"	9	Two men in police car - one negro, one Cuban
138	PB	"	10	Same men being led from TSBD by cops
139	PB	"	11	Three tramps being led away from TSBD
140	PB	"	12	Three tramps being led away from TSBD
141	PB	"	13	Rifle being carried away from TSBD by Lt. Day
142	PB	"	14	Rifle being carried away from TSBD by Lt. Day
143	PB	"	15	Rifle being carried away from TSBD by Lt. Day
144	PB	"	16	Two ladies & boy leaving TSBD
145	PB	"	17	View from 6th floor window - Nov. 22 PM
146	PB	"	18	Oswald arrival at Police Station
147	PB	"	19	Cop with shotgun looking up at TSBD
148	PB	"	20	Group around TSBD
149	PB	"	21	Old white haired man led away from TSBD
150	PB	"	22	Scene around & inside TSBD - view of east side of Houston
151	PB	"	23	TSBD from point on Houston
152	PB	"	24	3 boxes stacked up at TSBD 6th floor window
153	PB	"	25	Scene around & inside TSBD
154	PB	"	26	Scene around & inside TSBD
155	PB	"	27	Scene around & inside TSBD
156	PB	"	28	Scene around & inside TSBD
157	PB	"	29	Scene around & inside TSBD
158	PB	"	30	Scene around & inside TSBD
159	PB	"	31	Scene around & inside TSBD
160	PB	"	32	Scene around & inside TSBD
161	PB	"	33	Scene around & inside TSBD
162	PB	Wm. Allen,23	1-3	(Dallas Times Herald) 12:39 PM Walthers and second official picking up something from ground
163	PB	"	1-4	12:40 PM (Hertz clock shows) Walthers and group near spot where something picked up - South of Elm near inlet
164	PB	"	1-5	12:41 PM Grassy knoll from center of plaza
165	PB	"	1-6	Group near foot of steps on Elm - TSBD & Dal Tex in background - C. Brehm being interviewed 12:42 PM
166	PB	"	1-7	Group near foot of steps on Elm - Grassy knoll in background - C. Brehm being interviewed 12:42 PM
167	PB	"	1-8	Group near foot of steps on Elm - Center of plaza in background 12:42 PM
168	PB	"	1-15	Cop with shotgun - Dal Tex in background - Elm & Houston 12:43 PM
169	PB	"	1-16	Cop with shotgun - View east on Elm from Houston 12:44 PM
170	PB	"	1-17	(around 12:45 PM) TSBD from south of Elm on Houston.
171	PB	"	1-18	TSBD from south of Elm on Houston (closer view)
172	PB	"	1-19	Crowd held back - Corner Elm & Houston outside County Records Bldg.
173	PB	"	1-20	Dal Tex, cops with shotguns from corner Elm & Houston
174	PB	"	2-3	Cops & crowds in front of Dal Tex fire escape - Mentesana in photo
175	PB	"	2-4	Cop with shotgun in front of Dal Tex
176	PB	"	2-5	6th floor window - Man measuring cartons
177	PB	"	2-6	6th floor window - Man measuring cartons
178	PB	"	2-7	6th floor window - Man measuring cartons
179	PB	"	2-8	Cops checking cars lined up to leave parking lot 12:54 PM
180	PB	"	2-14	12:55 PM Sheriff waving out of 6th floor window next to "the" window
181	PB	"	2-15	"Assassins" window
182	PB	"	2-16	12:55 PM Cops with shotguns - Dal Tex in background (looks like Murray 2-15)
183	PB	"	2-17	Larry Florer being frisked
184	PB	"	2-18	Larry Florer close up
185	PB	"	2-19	"Assassins" window
186	PB	"	3-5	1:00 PM Larry Florer in Sheriff's office
187	PB	Wm. Allen,23	3-6	Larry Florer in Sheriff's office
188	PB	"	3-7	Larry Florer in Sheriff's office
189	PB	"	3-8	Larry Florer in Sheriff's office
190	PB	"	3-9	Larry Florer in Sheriff's office
191	PB	"	3-10	Larry Florer in Sheriff's office
192	PB	"	3-11	TSBD from a distance
193	PB	"	3-12	TSBD from closeup
194	PB	"	3-13	Two cops in TSBD doorway
195	PB	"	3-14	Three "tramps" from R.R. yards in front of TSBD
196	PB	"	3-15	Three "tramps" on Houston St.
197	PB	"	3-16	Three "tramps" being led towards sheriff's office
198	PB	"	4-2	Bullet mark on curb
199	PB	"	4-3	Bullet mark on curb
200	PB	"	4-4	Lt. Montgomery with bag & Lt. Johnson with bottle
201	PB	"	4-5	Lt. Montgomery with bag & Lt. Johnson with bottle
202	PB	"	4-6	Lt. Johnson with bottle & lunch sack
203	PB	"	4-7	Lt. Johnson with bottle & lunch sack
204	PB	"	4-14	Boxes inside 6th floor window
205	PB	"	4-15	Boxes inside 6th floor window
206	PB	"	4-16	Boxes inside 6th floor window
207	PB	"	4-17	View down Elm from 6th floor window
208	PB	"	4-18	View down Elm from 6th floor window
209	PB	"	4-19	View down Elm from 6th floor window
210	PB	"	5-1	Rear bumper of car
211	PB	"	5-2	Cop in front of TSBD & group
212	PB	"	5-3	Group in front of TSBD
213	PB	"	5-4	Cops in TSBD doorway
214	PB	"	5-5	Police cars and crowd behind TSBD (north)
215	PB	"	5-6	Police cars and crowd behind TSBD (north)
216	PB	"	5-6	Police cars and crowd behind TSBD (north)
217	PB	"	5-8	Negro & Latin man under arrest on Elm St.
218	PB	"	5-9	Negro & Latin man climbing in police car
219	PB	"	5-10	Negro & Latin man in police car
220	PB	"	5-11	Lt. Day carrying rifle out of TSBD
221	PB	"	5-12	Lt. Day carrying rifle toward Houston & Elm
222	PB	"	5-13	Lt. Day carrying rifle toward Houston & Elm
223	PB	"	5-14	Lt. Day carrying rifle approaching corner
224	PB	"	5-15	Lt. Day carrying rifle crossing Houston
225	PB	"	5-16	Lt. Day carrying rifle crossing Houston
226	PB	"	5-17	Lt. Day carrying rifle in front of Dal Tex
227	PB	"	5-18	Lt. Day carrying rifle in front of Dal Tex
228	PB	"	6-3	Two women and man leaving a house
229	PB	"	6-4	Two women and man getting in police car - Another photographer shows
230	PB	"	6-5	Two women and man getting in police car - Another photographer shows
231	PB	"	6-6	Two women and man in police car - Another photographer shows
232	PB	"	6-7	Two women and man arriving at police station
233	PB	"	6-8	Two women and man arriving at police station
234	PB	"	6-9	Two women and man in police waiting room
235	PB	J.McAuley,24	1	(Ft. Worth Star Telegram) Man arrested in Ft. Worth near police car
236	PB	"	2	Man near car in Ft. Worth - Nov. 22 PM
237	PB	"	3	Man being led away from car
238	PB	H.Cabluck,25	1	(Ft. Worth Star Telegram) Spot where bullet hit grass
239	PB	"	2	Spot where bullet hit grass
240	PB	"	3	Spot where bullet hit grass
241	PB	"	4	Spot where bullet hit grass
242	PB	"	5	Parkland Hospital - Many people in front
243	PB	"	6	Parkland Hospital - Many people in front
244	PB	"	7	Parkland Hospital - Many people in front
245	PB	J.Cabluck,26	1	(Ft. Worth Star Telegram) Dealey Plaza from Helicopter late afternoon - Nov.22
246	PB	"	2	Helicopter view of Dealey Plaza from east of Dal Tex
247	PB	"	3	Helicopter view of Dealey Plaza from west of overpass
248	PB	"	4	Parkland Hospital, JFK car
249	PB	"	5	Parkland Hospital, other cars
250	PB	"	6	View of Railroad tracks from TSBD
251	PB	G. Smith,27	1	(Ft. Worth Star Telegram) Three men from R.R. tracks in front of TSBD under arrest
252	PB	"	2	Three men from R.R. tracks in front TSBD under arrest
253	PB	"	3	Lt. Montgomery with bag
254	PB	"	4	Lt. Montgomery with bag
255	PB	"	5	Lt. Johnson with sack and bottle
256	PB	"	6	Lt. Johnson with sack and bottle
257	PB	"	7	NW corner 6th floor TSBD inside
258	PB	W.Davis,28	1	(Ft. Worth Star Telegram) Photographers in camera car CAM 2 early motorcade

Photo No.	Type	Photographer Name & No.	Seq. No.	Photo Shows
259	PB	Weigman,29	1	Scene on Elm, grassy knoll, TSBD doorway from CAM 1
260	PB	"	2	Newmans on ground - Cong 1 & 2 on Elm St.
261	PB	Murray,30 *4	1	Blank
262	PB	"	1-2	Blank
263	PB	"	1-3	Elm & Houston & Dal Tex from in front of TSBD 12:33
264	PB	"	1-4	-
265	PB	"	1-5	Parking Lot - North section 12:34
266	PB	"	1-6	Parking Lot - South section 12:34
267	PB	"	1-7	Elm St. Ext. - From west end looking east 12:34
268	PB	"	1-8	Center of Plaza from knoll 12:35
269	PB	"	1-9	Closeup of large group on north curb of Elm 12:35
270	PB	"	1-10	Closeup of couple on north side Elm St. - TSBD in background 12:36
271	PB	"	1-11	Long shot facing overpass from steps on Elm 12:37
272	PB	"	1-12	Arcade & knoll from center of Plaza 12:38
273	PB	"	1-13	Police examine spot on ground - Hertz clock shows the time 12:39
274	PB	"	1-14	Same as 13 - South Elm near sewer outlet - Walthers lighting cigarette 12:39
275	PB	"	1-15	Walthers picking up something from ground 12:39
276	PB	"	1-16	Walthers holding something in his hand 12:39
277	PB	"	1-17	Another official touching spot on ground 12:40
278	PB	"	1-18	Police standing around spot on ground 12:40
279	PB	"	1-19	Police picking up other objects from two spots - Clock shows the time 12:40
280	PB	"	1-20	TSBD Plaza & knoll from Commerce St. - Front doorway guarded by two cops 12:41
281	PB	"	1-21	TSBD Plaza & knoll from Commerce St.12:41
282	PB	"	1-22	Front door of TSBD from south of Elm 12:42
283	PB	"	1-23	Front door of TSBD from south of Elm 12:42
284	PB	"	1-24	Front door of TSBD - Closeup 12:42
285	PB	"	1-25	Front door of TSBD - Closeup 12:43
286	PB	"	1-26	Negro boy in police car - Front of TSBD 12:43
287	PB	"	1-27	Front door TSBD - Closeup - Walthers in doorway 12:43
288	PB	"	1-28	View east on Elm St. from Houston & Elm Dal Tex & County Records Bldg. 12:43
289	PB	"	1-29	County Records Bldg. - NW Corner 12:43
290	PB	"	1-30	View north on Houston from south side of Elm St. 12:44
291	PB	"	1-31	TSBD from Houston & Main 12:44
292	PB	"	1-32	TSBD front & doorway from Houston & Elm 12:45
293	PB	"	1-33	TSBD front & doorway from Houston & Elm 12:45
294	PB	"	1-34	TSBD doorway - Crowd in front 12:45
295	PB	"	1-35	Cop with shotgun - Dal Tex Bldg. in background 12:45
296	PB	"	1-36	View north on Houston from Elm St. 12:45
297	PB	"	2-3	View of overpass from Elm 12:40
298	PB	"	2-4	Crowd on Elm & eastern Cupola from south on Elm 12:40
299	PB	"	2-5	TSBD front door - Reporter tape recording interview with Brennan 12:42
300	PB	"	2-6	TSBD front door 12:42
301	PB	"	2-7	TSBD front door 12:42
302	PB	"	2-8	Walthers being interviewed in front of TSBD 12:45
303	PB	"	2-9	Walthers being interviewed in front of TSBD 12:45
304	PB	"	2-10	Policeman on 6th floor yelling out window & pointing to 6th floor window 12:55
305	PB	"	2-11	Policeman on 6th floor yelling out window & pointing to 6th floor window 12:55
306	PB	"	2-12	Three ladies on top floor fire escape landing of Dal Tex 12:56
307	PB	"	2-13	Cops with shotguns in front of Dal Tex 12:56
308	PB	"	2-14	Cops with shotguns in front of Dal Tex 12:56
309	PB	"	2-15	Cops with shotguns in front of Dal Tex 12:56
310	PB	"	2-16	Cops with shotguns in front of Dal Tex 12:56
311	PB	"	2-17	Larry Florer being interviewed in Sheriff's office 1:06
312	PB	"	2-18	Larry Florer being interviewed in Sheriff's office 1:06
313	PB	"	2-19	Four men in Sheriff's office 1:06
314	PB	"	2-20	Larry Florer 1:06
315	PB	"	2-21	Larry Florer 1:06
316	PB	"	2-22	Larry Florer 1:06
317	PB	"	2-23	Cops beside Dal Tex Bldg. - Houston St. side 1:08
318	PB	Murray,30	2-24	Cops beside Dal Tex Bldg. - Houston St. side 1:00
319	PB	" (Murray went downtown to buy film)	2-25	Group in front of Dal Tex - Closeup 1:09
320	PB	"	2-26	BarBQ place downtown 1:24
321	PB	"	2-27	BarBQ place downtown 1:24
322	PB	"	2-28	BarBQ place downtown 1:24
323	PB	"	2-29	Larry Florer in Sheriff's office 1:30
324	PB	"	2-30	Larry Florer in Sheriff's office 1:30
325	PB	"	3-2	Group outside Dal Tex 12:56
326	PB	"	3-3	Front of TSBD & Elm St. Ext. looking west 12:56
327	PB	"	3-4	View south on Houston from Elm 12:57
328	PB	"	3-5	View south on Houston from Elm 12:57
329	PB	"	3-6	In Sheriff's office 1:06
330	PB	"	3-7	In Sheriff's office 1:06
331	PB	"	3-8	In Sheriff's office 1:06
332	PB	"	3-9	In Sheriff's office 1:06
333	PB	"	3-10	Mary Moorman using phone in Sheriff's office 1:06
334	PB	"	3-11	View across Plaza from Houston 1:07
335	PB	"	3-12	Bar on Houston St. - South of Main 1:12
336	PB	"	3-13	Bar on Houston St. - South of Main 1:12
337	PB	"	3-14	Cab driver downtown where Murray bought film 1:23
338	PB	"	3-15	In Sheriff's office 1:30
339	PB	"	4-4	Overpass from Elm & Houston
340	PB	"	4-5	Overpass from Elm & Houston
341	PB	"	4-6	Overpass from Elm & Houston
342	PB	"	4-7	TSBD West end - Top floor
343	PB	"	4-8	TSBD West end - All floors
344	PB	"	4-9	Houston & Elm activity
345	PB	"	4-10	Houston & Elm activity
346	PB	"	4-11	Houston & Elm activity
347	PB	"	4-12	Houston & Elm activity
348	PB	"	4-13	Houston & Elm activity - Possible arrest
349	PB	"	4-14	TSBD East end - Top floors
350	PB	"	4-15	TSBD East end - Top floors
351	PB	"	4-16	TSBD East end - Top floors
352	PB	"	4-17	TSBD East end - Top floors - Clock shows
353	PB	"	4-18	TSBD East end - Top floors
354	PB	"	4-19	TSBD East end - Top floors
355	PB	"	4-20	TSBD East end - Top floors
356	PB	"	4-21	TSBD East end - Top floors
357	T	Atkins,31	1	Newmans on the ground
358	T	"	2	Newmans on the ground
359	PB	Cancellare,32	1	Newmans on ground - Weigman, Craven, Altgens *5
360	PB	"	2	Newmans on ground - Closeup
361	PB	"	3	Parking lot
362	PB	"	4	Plaza & Elm St. from knoll
363	PB	"	5	Crowd on north side of Elm from knoll - Babushka Lady appears
364	PB	"	6	Crowd on Overpass watching JFK going out Stemmons Freeway
365	PB	UPI, 33	1	Lt. Montgomery carrying paper bag out of TSBD
366	PB	UPI, 34	2	Officers in front of TSBD
367	PB	"	3	Copy of Wm. Allen 1-3 with caption reading: "Dallas police search ground for bullet believed to have lodged in the earth"
368	PB	UPI, 35	4	Negro girl crying outside Parkland Hospital
369	PB	"	5	Negro girl crying outside Parkland Hospital
370	PB	Stoughton,36		Not sure he took anything Cam 2
371	PB	Burrows,37	1	Camera cars on Houston St. from Cam 2 (AP)
372	PB	"	2	Camera cars on Houston St. from Cam 2
373	MC	Dorman,38	1	JFK on Houston - Glimpses on Elm before shots
374	MC	"	2	More glimpses on Houston after shots
375	PC	Unidentified,39 Photog.(Foley)	1	TSBD on AM of Nov. 22 - 6th floor window
376	MC	Mrs. Beck,40		Not sure film exists - Taken during shots
377	PB	Weaver,41	1	TSBD 6th floor window before first shot
378	PB	Powell, 42		Cannot find him
379	PB	Volkland,43	1	JFK on Stemmons Freeway - Back of TSBD & Parking lot
380	PC	MacCammon,44	1	Group of police interrogating an old negro outside TSBD
381	PC	"	2	Group of police interrogating an old negro outside TSBD
382	PC	"	3	Scene in Dealey Plaza
383	PC	"	4	Scene in Dealey Plaza
384	PC	"	5	Scene at Tippitt shooting
385	PC	"	6	Scene at Tippitt shooting
386	PC	"	7	Oswald in Texas Theatre just before arrest
387	PC	"	8	Oswald in Texas Theatre just after arrest

Photo No.	Type	Photographer Name & No.	Seq. No.	Photo Shows
388	PB	Jackson,45	1	(Times Herald) Photo of cars on Houston St.
389	T	A.J.L'Hoste,46	1	Station WFAA-TV (ABC) Photographer - Cop carrying shotgun toward TSBD
390	T	"	2	Decker. Brennan. Cop with shotgun outside TSBD doorway
391	T	"	3	TSBD doorway near same time as Willis 10
392	T	"	4	6th floor window from underneath
393	T	"	5	Larry Florer led toward Houston & Elm
394	T	"	6	Decker being interviewed in front of TSBD
395	T	"	7	Four cops with shotguns - Dal Tex in background
396	T	"	8	Larry Florer being led down Houston St. - 3 other photographers show up
397	T	"	9	Larry Florer going into garage entrance of Sheriff's Bldg.
398	T	"	10	Two cops leading negro witness into TSBD
399	T	"	11	Possibly two men placed in police car in front of TSBD
400	T	"	12	Same two men driving down Elm St.
401	T	"	13	Mexican & negro led to police car on Elm St.
402	T	"	14	Same two being placed in car - Another photographer
403	T	T. Alyea,47	1	(WFAA-TV ABC) View of Plaza & knoll from Houston & Main - crowd moving toward knoll
404	T	"	2	Scene outside TSBD
405	T	"	3	Scene outside TSBD
406	T	"	4	Scene outside TSBD
407	T	"	5	Scene outside TSBD
408	T	"	6	Police searching through 6th floor
409	T	"	7	Police looking out 6th floor on Houston St.
410	T	"	8	Cop sticks head out toward Elm St.
411	T	"	9	Area showing lunch sack & Dr. Pepper bottle
412	T	"	10	Rifle on 6th floor of TSBD - In hiding place - Sheriffs & police examine spot
413	T	"	11	Closeup of rifle posed for photo - Sight visible
414	T	"	12	Policeman holds rifle up - Second cop points at bolt
415	T	"	13	Group near boxes where rifle found - Newsmen taking notes
416	T	"	14	Lt. Day dusting live shell for fingerprints. Bullet visible
417	T	"	15	Sheriffs talking on 6th floor
418	T	R.Reiland,48	1	(WFAA-TV ABC) Frame Bldg. in Oak Cliff - Where assassin thought to be - Men sneaking upon it - Could be library or temple
419	T	"	2	Two police cars speeding along residential street in Oak Cliff - Police go into old frame building
420	T	"	3	Cop holding up light grey jacket - Near parking lot
421	T	"	4	Men in shirt sleeves talking near used car lot
422	T	"	5	Several police cars & cops near Tippitt shooting site - Cop runs toward police car holding gun butt
423	T	"	6	Group gathered around Tippitt's car. Piece of paper or poster lying on dashboard - No detail
424	T	"	7	Cops examine Tippitt's billfold (according to Reiland who is narrating) - Note pad inside - Cops point to it - Cop holding Tippitt's pistol beside his car
425	T	"	8	Group around Tippitt shooting site (overexposed)
426	T	"	9	Crowd around police car in business section - It drives away with someone in back seat
427	T	"	10	Police cars driving up to Texas Theatre
428	T	"	11	Texas Theatre looking up at tower
429	T	"	12	Texas Theatre - Cops going in - Car pulls away
430	T	"	13	Inside Texas Theatre - Very dark - Lights blinking - Cops hustle Oswald toward inside doorway
431	T	"	14	Crowd gathered around police car outside Texas Theatre - Oswald inside in back seat - It drives away
432	T	M. Couch,49	1	(WFAA-TV ABC) In CAM 3 - Motorcade on Main St. approaching Houston St.
433	T	"	2	Front of TSBD - Crowd on north side of Elm as CAM 3 rounds corner Houston & Elm
434	T	"	3	CAM 1, CAM 2, other photographers on knoll - Newmans on ground - man with umbrella folded - Officer Haygood approaching north curb - Hargis running to cycle South of Elm St. as CAM 3 moves down Elm
435	T	M. Couch,49	4	Cop with revolver drawn - South of Elm
436	T	"	5	Brehm, Babushka Lady, Summers, Hill, Moorman, Tague South of Elm - Sweeping view to overpass
437	T	"	6	Photographers on knoll - Newmans on ground
438	T	"	7	Haygood trying to jump cycle over curb north of Elm - Weigman & Cancellare running to catch CAM 1
439	T	"	8	Crowd on North side of Elm - Taken from arcade
440	T	"	9	Crowd on North side of Elm - Taken from Houston & Elm
441	T	"	10	Crowd on North side of Elm - Taken from car driving on Elm (All of above are taken prior to 12:35 PM - Nov. 22)
442	T	"	11	TSBD 6th floor window inside - Cops looking out
443	T	"	12	TSBD from center of Plaza - Zooms in on 6th floor window - Pans down to knoll - Then to corner of Houston & Elm & back to overpass - Executive train moving on overpass
444	T	"	13	Arcade with several people in it
445	T	"	14	WFAA Commentator shows rifle & telescopic sight similar to Oswalds lying in Plaza grass - Demonstrates bolt action
446	T	"	15	Center of Plaza from knoll
447	T	"	16	Cupola, Zapruder's position & arcade (Sequences 11 to 16 above were taken between 3 and 4 PM - Nov. 22)
448	T	D. Cook,50	1	(KTVT-Channel 11 Fort Worth) JFK on Main and rounding corner Houston & Main - Taken from in front of Sheriff's office
449	T	"	2	Cop with drawn revolver & crowd on Elm less than two minutes after fatal shot
450	T	"	3	Activity in parking lot
451	T	"	4	Looking east on Elm St. Ext. toward TSBD
452	T	"	5	In front of TSBD
453	T	"	6	Inside TSBD - Lower floor
454	T	"	7	Inside TSBD - Sixth floor
455	T	"	8	Arrest & possible rifle (same as Willis 10)
456	T	"	9	Larry Florer arrest
457	T	"	10	Scene of Plaza
458	T	"	11	Scene in front of TSBD
459	T	"	12	Scene of knoll (All of above by Don Cook were taken prior to 1:30 PM - Nov. 22)
460	T	T.Craven,51	1	(CBS) From CAM 1 Houston St. before the shots
461	T	"	2	Knoll after shots - Craven jumped out of CAM 1
462	T	"	3	Closeup of Newmans
463	T	"	4	Arcade (2, 3, 4 above were taken within 2 minutes after fatal shot)
464	T*	Underwood,52	1	(KRLD-CBS) TSBD sign over doorway
465	T*	Sanderson,53	2	Sixth floor window from directly beneath
466	T	"	3	Cops with shotguns - Dal Tex in background
467	T	"	4	Cops with shotguns - Dal Tex in background - Police photographer leaving TSBD
468	T	"	5	Fire engine moving North to Elm on Houston
469	T	"	6	Cops with shotguns
470	T	"	7	Fifth floor window TSBD from directly beneath
471	T	"	8	Cop with shotgun & police official - Dal Tex in background
472	T	"	9	Sixth floor window from beneath - Pans down to view West on Elm St. Ext. - Several cops moving fast - Police car in center cop getting out
473	T	"	10	Cop looking up at TSBD with shotgun
474	T	"	11	Cop looking up at TSBD with shotgun
475	T	"	12	Same cop looking up at County Records Bldg.
476	T	"	13	Several men going into TSBD doorway
477	T	"	14	TSBD from Houston St. - Pans in on 6th floor window
478	T	"	15	Several more men going into TSBD doorway
479	T	"	16	Cop & two police officials running fast from near TSBD doorway toward garage entrance of County Record Bldg.
480	T	"	17	Fireman going into TSBD carrying ladder
481	T	"	18	Arrest & possible rifle in front of TSBD (same as Willis 10)
482	T	"	19	Decker being interviewed in front of TSBD (shows in Murray)
	T	"	20	Fake secret service man & Roger Craig in front of TSBD (shows in Murray)
483	T	J.Darnell,54	1	(WBAP-NBC) Elm St. activity after he jumped out of CAM 3 - Less than 1 min. after fatal shot

Photo No.	Type *1	Photographer Name & No.	Seq. No.	Photo Shows
404	T	J.Darnell,54	2	In parking lot
405	T	"	3	In front of TSBD - Arrest of man on Elm
406	T	"	4	In WBAP press room - Old Co. Court House - Witness interviews
407	T	D.Owens,55	1	(WBAP-NBC) In front of TSBD
408	T	"	2	Decker being interviewed in front of TSBD
409	T	KRLD,56	1	(Photographer unknown) Two men running in shadow of fence toward old building among trees & shrubbery - Could be library or church in Oak Cliff where suspect was believed to be hiding
490	MC	T.Towner,57	1	JFK rounding corner Houston & Elm
491	PC	"	1	JFK rounding corner Houston & Elm
492	PC	"	2	Camera cars going down Elm St.
493	MC	P.Paschall,59	1	JFK going under overpass
494	PC	N.Similas,60	1	JFK on Elm - TSBD in background
495	PC	"	2	JFK on Elm - Overpass in background
496	PB	D.Moorman,61	1	JFK in car after shots (Sold to AP)
497	PB	J.Newman,62	1	JFK on Stemmons (Sold to AP)
498	PB	T.Howard,63	1	JFK at time of fatal shot - Eva Grant says Howard had this photo - Not sure it exists
499	?	Unidentified Photog,64		Appears in Wm. Allen 196
500	?	Babushka Lady,65		Could be Babushka Lady - Appears in many pictures taken north and south of Elm - Probably took movie of fatal shot
501	?	Unidentified Man,66		Appears in Muchmore 1
502	?	Unidentified Man,67		Appears in Martin 3
503	?	Overpass Man,68		Policeman says he saw someone on overpass taking pictures
504	?	Unidentified Woman,69		Brennan says he saw her taking pictures
505	?	Unidentified Woman,70		Appears in Altgens 1-4
506	?	Unidentified Man,71		Appears in Murray at Houston & Elm
507	?	Unidentified Man,72		Appears in Murray 1-22, 1-23, 2-5, 2-6 and 2-7 in TSBD doorway
508	?	Grant,73		Not sure he took anything - Was in CAM 2
509	?	Unidentified Man,74		Took Elm St. photo before motorcade arrived
510	?	Unidentified Photog,75		JFK early in motorcade. Jack Ruby? & stripper? standing on curb
511	?	Unidentified Photog,76		Man taking movies from upper floor of Dal Tex Bldg. Sorrels took possession. See Sawyer Test. 6H324
512	?	Joe Scott,78		TSBD scenes - KRLD photographer

*1 Legend for Type of Photo: M - Movie; P - Still Photo; T - Television Footage; C - Color; B - Black & White

*2 There are 10 other photographers' sequences in the DCA film in addition to Martin & Mentesana

*3 "Ike" Altgens, Associated Press, remembered taking only three of the photos he actually took in Dealey Plaza. He took seven at the time of the motorcade and 21 more after 5 PM. The actual roll and frame numbers on the negatives are given.

*4 James Murray used two cameras, one telefoto and one wide angle. The rolls as numbered alternate between the two cameras. Rolls 1,3 - Camera 1; Rolls 2,4, etc. - Camera 2. However, the individual photos do not alternate. Camera 2 was used much less frequently then Camera 1. The photos on Rolls 2,4,6,8, and 10 therefore are interspersed with Rolls 1,3,5,7, and 9 on a more or less random basis. Only the times listed indicate the true sequence. The roll and photo numbers listed are those appearing on the actual films. Only rolls 1 through 4 are listed here. Rolls 5-10 were exposed either on Nov. 23 or later, or the night of Nov. 22 in locations other than Dealey Plaza.

In addition there are four other Black Star photographers who took pictures: Gene Daniels, Matt Herron, Shel Hershorn and Mr. Shulke.

Gene Daniels took a total of 260 black and white, 35 mm still photos during the November 22-24 period. A few of these were taken the afternoon and evening of November 22 and the rest on November 23 and 24. There are scenes at Dealey Plaza, TSBD, Sheriff's office, Police station, Police press conferences, Oswald's rooming house and room, Oswald's public appearances, and views of Elm St. from Dal Tex Bldg. through telescopic sight.

Their photos are not counted on this list because they were not taken on November 22 in Dealey Plaza.

*5 Man with sign saying "S.O.B. Jack Kennedy" is standing on South curb of Elm, facing position of man with umbrella. This photo taken about 1 minute after shots. Could be a signal for successful hit.

*6 Underwood and Sanderson shared the same camera. Underwood borrowed it from Sanderson shortly after shots were fired, then returned it. It is not certain which one took what sequences.

Part 3. The Application of Computers to the Photographic Evidence

Correlation of the Evidence

It is highly desirable to apply the powers of the computer to analysis of the evidence. And since "the evidence" is a very large order, it makes sense to begin with the "photographic evidence".

Suppose we estimate at 200 the number of frames in an average photograph which is a movie or television sequence. In Table 3 (the main list) there is a record of about 44 movie sequences, and 101 television footages, 145 in total. This means that there are over 25,000 frames, plus approximately 350 still photographs, to be analyzed.

Over 200 persons, objects, etc., are mentioned briefly in the simple short descriptions of the photographs in Table 3. As more photographs are studied, other persons and objects can be identified. The different items need to be identified by codes; a sample of the coding scheme that would be applicable is shown in Table 4.

The sheer volume of record keeping for 200 to 300 objects and persons appearing in 25,000 frames requires a computer. The analysis of what appears in groups and series of photos and frames also requires computerized correlation.

How will the information for a photograph be entered into a computer? One reasonable way of proceeding is to make a "coding sheet" for each photograph, preparatory to giving it to a clerk for input into computer language. The coding sheet and instructions will look something like that shown in Table 5.

Suppose we have put together a computerized data base of the photographic evidence in this form. What will be the sorts of questions which computer programs will enable us to answer? Here are a few samples:

— Which are the pictures that show object ... or event ... ?
— Where was man # ... from time ... to time ... ?
— When did movable object ... leave the scene?

Essentially, when one is using an ordinary file and not using a computerized data base, the information in the file is accessible only by the main sequencing — in this case, the number of the photographer and the number of the picture or movie frame that he took. Cross referencing is possible, but difficult, time-consuming, and clumsy. When one uses a computerized data bank, cross referencing becomes very easy and fast. In fact, it may provide so much more facility in getting at the

Table 4

COMPUTER CODES FOR PERSONS AND OBJECTS IN THE PHOTOGRAPHS — PRELIMINARY LIST OF CODES

Persons

W. E. Barnett	102	man (unident.)	129
boy	103	man with sign	130
C. Brehm	104	Lt. Montgomery	132
Brennan	105	motorcycle cop	133
cab driver	106	Negro	134
cop	108	Negro girl	135
2 cops	109	Newmans	136
cops (officers)	110	newsmen (reporters)	137
couple	111	officials	138
Roger Craig	112	old Negro	139
Craven	113	L. Oswald	140
Latin man (Mexican, Cuban)	114	people (crowd)	141
Lt. Day	115	photographers	142
Decker	116	Jack Ruby	143
fake secret service man	117	sheriff(s)	144
fireman	118	J. M. Smith	145
L. Florer	119	Sorrels	146
Haygood (officer)	120	stripper	148
Hargis	121	Summers	149
Clint Hill	122	Tague	150
Lt. Johnson	123	Tippit	151
J.F.Kennedy	124	tramps	152
ladies (women)	125	woman (unident.)	153
B. Lovelady	126	Walthers	154
man arrested	127	Weigman	155
man in shirt sleeves	128	white-haired man	156

Regions or Places

arcade	201	N.W. corner 6th floor TSBD bldg. inside	218
area where Oswald's rifle found	202	Oak Cliff	219
bar on Houston St.	203	overpass (triple overpass)	220
Commerce St.	205	parking lot	221
curb	206	plaza	222
TSBD doorway	207	police (waiting room)	223
east cupola	208	railroad tracks	224
7th floor fire escape	210	residential street	225
6th floor window of TSBD	211	sheriff's office	226
Ft. Worth	212	spot where bullet hit grass (bullet mark)	227
garage entrance of Sheriff's building	213	Stemmons Freeway	228
grassy knoll	214	steps	229
Houston St.	215	Tower	230
Love Field	216	used car lot	231
Main St.	217	west cupola	232

Buildings

BarBQ place	301	library or church	307
County Courts	302	old building	308
County Records	303	Parkland Hospital	309
Dal-Tex	304	police station	310
frame buildings	305	Texas Theatre	311
house	306	TSBD (Texas School Book Depository)	312

Actions and Events

arrest	401	interrogating	409
carrying	402	interview	410
checking cars	403	leading	411
climbing	404	lighting cigarette	412
crying	405	measuring	413
dusting for fingerprints	406	tape recording	414
gun exam'n	407	telephoning	415
head shot	408	waving	416
		yelling	417

Objects

back seat	501	live shell	522
billfold	502	motorcade	523
boxes	503	motorcycle(s)	524
bullet	504	note pad	525
bullet mark	505	paper bag (sack)	526
camera (cam)	506	paper or poster	527
camera cars	507	pickup truck	528
cars	508	police cars	529
cigarette	509	rear bumper	530
clock (Hertz)	510	rifle	531
congressional car #2	511	sewer outlet	532
Corham sign	512	shadow	533
dash board	513	shot gun(s)	534
Dr. Pepper bottle	514	shrubbery	535
fence	515	telescopic sight	536
fire engine	516	trees	537
foot	517	umbrella	538
gun	518	unidentified object(s)	539
hand	519	white station wagon	540
J.F.K. car	520	windows	541
light gray jacket	521		

available information and answering questions, that it yields a revolutionary increase in what one can deduce.

Directions, Locations, and Timing

In addition to the content of the photographs as reported in Table 3 five more items of information need to be entered on the computer record of each frame or still photo:

- the identification of the photographer who took the photograph;
- the location of the photographer when he took it;
- the direction in which he took the picture;
- the time when he took the picture
- the identity of the person doing the analysis or submitting data about the picture.

The FBI and the Warren Commission staff made a careful analysis of the timing of the frames in the Zapruder film, and correlated these times with the positions of the presidential limousine and other cars in the motorcade. (See Chart 1). Consequently, there exists an accepted time scale at 1/18 second intervals which applies to the events in the photographs: the scale consists of eighteenths of a second (named with frame numbers of the Zapruder film) during the crucial 6.8 seconds of the fatal interval. I was able to extend this reference technique by using four other movies stretched end to end in time to cover the period from the moment Kennedy rounded the corner of Houston and Main Sts. up to the beginning of the Zapruder film.

A preliminary correlation of the times of various movie sequences and still photographs is shown in Table 1, for the period of Kennedy's travel through Dealey Plaza. In addition, Jim Murray's photographs form an excellent time reference base at less than 30 second intervals for nearly an hour after the last shot, beginning at three minutes after the last shot (see Table 1). The period from the end of the Zapruder film (roughly ten seconds after the last shot) up to the first of Murray's photos (about 3 minutes), is covered by several movies and TV sequences.

Clearly, a human clerk would find it difficult and tiring to enter the bulk of the applicable information for each frame of a long sequence. But a computer program should be able to enter a large part of the applicable information into the computer record for each frame.

The computer should be able to compute and keep records of the timing of all events, in seconds or minutes before or after the time of the first shot.

Image Enhancement and Correlation

Another possibility which computer graphics makes possible is image enhancement. This is an activity in which the human eye is expert. For ex-

Table 5

CODING SHEET FOR COMPUTER-ASSISTED ANALYSIS OF PHOTOGRAPHS — PRELIMINARY

Field	Coding Instructions	Approx. No. of Characters
A. Identification:		
1. Photograph Number	Use photograph number in main list	3
2. Type of photograph	Use M for movie, P for still photo, C for color, B for black and white, T for television footage	2
3. Photographer	Use photographer number in main list	2
4. Sequence number	Use photograph sequence number in main list	5
5. Person who analyzed photograph	Use analyst identifying number according to a previously established key	2
B. Contents of the Photograph:		
1. Photographers (Note: a picture may of course show other photographers taking pictures.)	Use photographer number. Previously, make an alphabetic key to photographers from main list	0 to 12
2. Other persons (in the picture who are not photographers)	Use person code in Table 4	0 to 12
3. Regions or places	Use place code in Table 4	3 to 12
4. Buildings	Use building number in Table 4	0 to 12
5. Events and actions	Use code in Table 4	3 to 12
6. Objects	Use code in Table 4	3 to 12
7. Place of the photograph	Use the grid shown in the map, letter first, then number	2
8. Time	Use time code. Previously, adopt a scale of times: fractions of seconds, labeled with Zapruder frame numbers during the Zapruder movie sequence showing the shots; then, seconds, minutes, and hours before and after the Z sequence as may be appropriate; then, days and dates	5
9. Capsule summary of photograph	Use 10 to 30 words describing the contents and importance of the photograph, according to specified rules for summarizing and examples	60 to 200
	Approximate maximum number of total characters for one computer record:	200 to 300

ample, when a picture is printed in a newspaper it is "screened", i.e., converted into a collection of small dots — some of which are white, some of which are black, — printed in varying intensities, and the human eye looking at the result reassembles the dots into a picture. If you take a magnifying glass, and look at a newspaper picture, the collection of dots becomes completely visible, and you are filled with an appropriate wonder over how the human eye manages to put them together into a picture.

However, if you desire to apply image enhancement with computer graphics, you find yourself with a two-edged sword, in this sense: If you know what you are looking for, then image enhancement can aid you. For example, it is easy to find where a circle is located if you know definitely that a circle is in the picture. But if you do not know what you are looking for, then it is easy to find and see things that are not there. For example, there are "experts" who can make people out of bushes, or make bushes out of people, or see canals on the surface of Mars.

In the case of the photographs taken at the time of the Kennedy assassination, we have, however, a different situation. Suppose that four photographs taken at just the same time show a particular spot on the grassy knoll from almost the same direction: it should be possible to use techniques of image enhancement and correlation, and thus see more clearly exactly what was at that spot. For here we are putting together not the information contained in just one picture, but the information contained in four pictures.

Several photos taken from different angles could also enhance an image in three dimensions. (The puff of smoke, for example).

Objectives of the Computer Search of the Photographic Evidence

What are the sorts of questions that might be answered from a thorough, computerized, search of the photographic evidence? Some of these questions are:

1. Can rifles be seen in firing positions?
2. Can the faces of the gunmen be seen?
3. According to the Warren Report, 56 witnesses (a majority) thought the shots came from a grassy knoll. Some of them saw a "puff of smoke" — do the photographs show a puff of smoke? (At least nine photographs do.)
4. Do the photographs show that shots came from the knoll? (Yes.)
5. Does the testimony of the witnesses as to what they did, agree with what the cameras showed that they did? (One Dallas police officer testified that after the shots he ran up the grassy knoll. But he is shown in some of the photographs, and he did no such thing — he just leaned against a lamp post.)
6. Can gunmen be traced through a series of photos?
7. Given a certain object or event in a particular place, which photos should show it during a particular time?

There is no doubt at all that a large number of steps can be taken towards the visual re-creation of that fatal scene, through the study of over 350 still photographs and over 25,000 frames.

The task of computerized analysis of the photographs has been started, but there is a long way to go. A great deal of good detective work should be able to be accomplished through computer record-keeping and analysis of the photographic evidence in the assassination of President Kennedy.

Part 4. Appendices

Acknowledgements and Notices

I wish to express thanks to the following researchers and authors who contributed to the collection and analysis of the photographic evidence and who stimulated me to undertake the work on the photographs: Richard Bernabei, Richard Billings, Lillian Castellano, Bernard Fensterwald, Margaret Field, Jim Garrison, Trent Gough, Jones Harris, David Lifton, Ray Marcus, Sylvia Meagher, Gary Murr, Fred Newcomb, Vincent Salandria, Gary Schoener, Jo-

sinh Thompson, William Turner, and Harold Weisberg. However, what is said in this article is my responsibility, not theirs.

Since a large number of details are covered in this article, and since there may occur errors of omission or commission or incomplete or inadequate analysis of some of the evidence, I would greatly appreciate any comments and corrections any reader may be kind enough to send me. All corrections will be published at a later date.

If by accident we have infringed on anyone's copyright in a publication of a picture, we shall be glad to pay the normal commercial rate for the use of the picture.

If any reader of this article desires to ask some specific questions in regard to the assassinations of President John F. Kennedy, or Martin Luther King, Jr., or Senator Robert Kennedy, about what has so far been found out by the researchers, Computers and Automation will make an effort to provide brief replies to these questions. Please write to Computers and Automation, Att'n K, 815 Washington St., Newtonville, Mass. 02160; and please enclose a self-addressed stamped envelope for each question, since the questions may be routed to different researchers for the answers. Unlike the Warren Commission, the researchers do not intend to disband immediately after issuing a set of conclusions, and to thereafter ignore all questions.

If any reader of Computers and Automation is interested in contributing computer programming or computer time or materials or funds to the investigation and efforts of the researchers in the NCTIA, he should write to Bernard Fensterwald, Jr., Chairman, NCTIA, 927 15th St. N.W., Washington, D.C.20005.

A double-size chart (22 inches by 34 inches) of Dealey Plaza showing the events in Dealey Plaza like that here published is available. It may be ordered for $5 from Cutler Designs, 38 Union St., Manchester, Mass. 01944. If you desire the chart unfolded, please specify that it be shipped in a cardboard tube. As additional information becomes available, the large chart will be brought up to date.

Epilogue

When I have talked from time to time to various audiences on this subject and shown them some of the photographs, I have encountered a number of questions. Some of these questions are here discussed.

• Why is it important to get to the bottom of the assassination of President Kennedy, now, after six and a half years have gone by? — There are several reasons. One is that there is a pattern of assassination (with evidence suggesting conspiracy) of important American leaders; two Kennedys and Martin Luther King, for example. A second reason is to save America — i.e., the United States as a democratic American society — by exposing the truth.

• Do you think you can save America? — It can be done but only with great pain, just as there was great pain over the Dreyfus Affair in France, 1894 to 1906.

• Why are you yourself so concerned about this? — Because I personally believe that the assassination and its coverup changed the course of United States history from a positive one to a negative one in a way that no other event or series of events ever has. I believe we must eventually rid our country and our own minds of the terrible social and political cancer that would allow this to happen and, worse, to permit the truth about the assassination to remain suppressed.

• Why did not Senator Robert Kennedy do something about this? — It is sad that he did not, for I think he would have been alive now if he had. There is little evidence for any answer, but there are two popular theories. One theory is that, even though he knew the truth, he underestimated the forces that stood between him and the presidency of the United States, and that he assumed that, once President, he could expose the truth. The second theory is that his connections with the Central Intelligence Agency and the failure of an attempt to assassinate Fidel Castro resulted in some anti-Castro Cubans and others participating in organizing his assassination — some of the same people who had participated in the assassination of his brother. I do not know why Senator Robert Kennedy remained silent; why Senator Edward Kennedy remains silent; and why they have both suppressed the autopsy materials on President John F. Kennedy.

• Do you think District Attorney Jim Garrison is a madman or a fool or insane? — No. I think that he is absolutely sane, and one of the old-style Americans left, and that he has a great deal of courage. He also suffered from underestimating the strength of the forces ranged against him. In addition, the CIA penetrated his case against Clay Shaw; they were even paying the lawyers of some of the people he arrested or attempted to subpoena. He said, "You can't conduct a trial of a CIA-backed conspiracy in an ordinary U.S. court."

• Why did the national news media cooperate in the attack on Garrison's credibility? — This question is hard to answer in a short space. For much light on this important subject, I refer you to Mark Lane's book, A Citizen's Dissent, now in paperback.

• Are you telling me that men as distinguished as Chief Justice Earl Warren, John J. McCloy, Allen Dulles, Gerald Ford, and others on the Warren Commission can be wrong about their conclusion expressed in the Warren Commission Report? — Yes. If you want to know how and why, read the book Inquest by Edward J. Epstein, which is a valuable contribution. But Epstein was paid several tens of thousands of dollars (perhaps indirectly from government sources) for the article that he published in the New Yorker magazine attacking Garrison, and that article contains over 100 misstatements. Recently, one of the Warren Commissioners, Senator Richard Russell, has said publicly that he has doubts about some of their conclusions. Also Jesse Curry, Dallas police chief in November 1963, has said publicly the same thing.

• Did Lyndon B. Johnson know about the plans for the assassination of President John F. Kennedy in Dallas before it happened? — So far no substantial evidence has been found to show that he did.

Did J. Edgar Hoover know about the plans for the assassination of President John F. Kennedy in Dallas before it happened? — There is conclusive evidence that J. Edgar Hoover knew, and issued no warnings.

• What can be done?

1. One of the things that anyone can do is to read up on this subject, become informed, and talk to his friends.
2. Another thing that may be possible is to organize in a year or two an untainted Congressional committee of investigation, which will look into political assassinations in the United States.
3. It would be good to persuade President Richard Nixon to issue an executive order to release the classified documents buried in the National Archives for 75 years (by President Lyndon Johnson's executive order), along with the Kennedy autopsy materials.
4. It would be good to dismantle the Central Intelligence Agency — which President Kennedy before he was assassinated said he

would like to do — and distribute its functions elsewhere, and in the meantime make it accountable for budgetary funds voted by Congress.

5. It would be good to expose J. Edgar Hoover, to call the attention of the public to his suppression of evidence and his failure to warn President Kennedy of the plot for assassinating him in Dallas, and to compel his resignation. The FBI knew about the plot well ahead of time — through Oswald's Nov. 20 phone call, and the Miami police's warning, at least.

• What about an organization dealing with this subject? — There is one. As mentioned above, a considerable amount of the new evidence comes from the work of a group of researchers, who have interviewed many witnesses, examined many documents, and studied many of the photographs. This group of researchers is loosely coordinated by the National Committee to Investigate Assassinations, which has an office in Washington, D.C., and whose chairman is Bernard Fensterwald, Jr. He is a Washington attorney who a few years ago was the head of the legal staff assisting Senator Estes Kefauver in his investigation into organized crime. He was also Senator Edward Long's attorney in the administrative procedures sub-committee of the Government Operations Committee. The NCTIA has been accumulating evidence, which is stored in a number of different places, and stands ready to cooperate with law enforcement agencies as well as Congress. The committee needs money, particularly for computerized correlation of the mass of evidence it has accumulated. The name and address are The National Committee to Investigate Assassinations, 927 15th St. N.W., Washington, D.C.

• What about the mysterious deaths of witnesses? — One of the researchers who is a member of the committee is Penn Jones, Jr., Editor, Midlothian Mirror, Midlothian, Texas, who has been compiling and publishing evidence for over six years. He maintains a list of witnesses who "knew too much" and who have died unexplained deaths. There have been over 50 deaths among this group (according to his definition of it) in the time since November 22, 1963; the chance that that number of deaths is due to natural causes is much less than one out of a million millions.

• Have any of the researchers been killed or threatened? — No, not yet. In appraising the forces on each side of this issue, the great weight is still on the side of the American people, who have not yet been completely "taken over". In fact the capacity of the American people to deal with the misinformation and propaganda being told them through government publicity, government statements, and government commissions seems to be steadily improving. The most recent examples are Songmy, Pueblo, Laos, and Cambodia. Besides some branches of the Federal government such as the CIA and FBI, only some of the police departments of the country (such as Dallas, Memphis, Chicago, and Los Angeles) have so far been "taken over" (in the sense of full cooperation with the suppression of evidence about assassination plotters and other political plots). There is a good chance that these police departments can be "taken back", provided we the people can see more clearly what is happening. There is hope.

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A longer bibliography is available from the National Committee to Investigate Assassinations, 927 15th St. N.W., Washington, D.C.